FAIRFIELD
UNIVERSITY

BEI School of Engineering

bachelor of science

electrical engineering

mechanical engineering

computer and information systems engineering

concentrations in manufacturing engineering

associate in engineering degree

certificate in information systems technology

mechanical engineering

manufacturing engineering

information systems technology

computer and information systems engineering

electrical engineering

graphics and design

COURSE CATALOGUE 1996-97

Applications and Information

For applications and information, please write, call, fax, or e-mail:

The BEI School of Engineering

McAuliffe Hall
Fairfield University
Fairfield, Connecticut 06430-5195
Phone: BEI Office, (203) 254-4147; Fax: (203) 254-4013
E-mail: BEI@FAIR1.FAIRFIELD.EDU

For Registration, contact the University Registrar at (203) 254-4109

BEI SCHOOL OF ENGINEERING OF FAIRFIELD UNIVERSITY

Bachelor of Science Degrees
and
Associate Degrees
in
Engineering

Departments of

Computer and Information Systems Engineering

Electrical Engineering

Mechanical Engineering

Table of Contents

The Mission of Fairfield University

Fairfield University, founded by the Society of Jesus, is a coeducational institution of higher learning whose primary objectives are to develop the creative intellectual potential of its students and to foster in them ethical and religious values and a sense of social responsibility. Jesuit education, which began in 1547, is committed today to the service of faith, of which the promotion of justice is an absolute requirement.

Fairfield is Catholic in both tradition and spirit. It celebrates the God-given dignity of every person. As a Catholic university it welcomes those of all beliefs and traditions who share its concerns for scholarship, justice, truth, and freedom, and it values the diversity which their membership brings to the university community.

Fairfield educates its students through a variety of scholarly and professional disciplines. All of its schools share a liberal and humanistic perspective and a commitment to excellence. Fairfield encourages a respect for all the disciplines, their similarities, their differences, and their interrelationships. In particular, in its undergraduate schools it provides all students with a broadly based general education curriculum with a special emphasis on the traditional humanities as a complement to the more specialized preparation in disciplines and professions provided by the major programs. Fairfield is also committed to the needs of society for liberally educated professionals. It meets the needs of its students to assume positions in this society through its undergraduate, graduate, professional schools and programs.

A Fairfield education is a liberal education, characterized by its breadth and depth. It offers opportunities for individual and common reflection, and it provides training in such essential human skills as analysis, synthesis, and communication. The liberally educated person is able to assimilate and organize facts, evaluate knowledge, identify issues, use appropriate methods of reasoning, and convey conclusions persuasively in written and spoken word. Equally essential to liberal education is the development of the aesthetic dimension of human nature, the power to imagine, to intuit, to create, and to appreciate. In its fullest sense liberal education initiates students at a mature level into their culture, its past, its present, and its future.

Fairfield recognizes that learning is a lifelong process and sees the education which it provides as a foundation upon which its students may continue to build within their chosen areas of scholarly study or professional development. It also seeks to foster in its students a continuing intellectual curiosity and a desire for self-education which will extend to the broad range of areas to which they have been introduced in their studies.

As a community of scholars, Fairfield gladly joins in the broader task of expanding human knowledge and deepening human understanding, and to this end it encourages and supports the scholarly research and artistic production of its faculty and students.

Fairfield has a further obligation to the wider community of which it is a part, to share with its neighbors its resources and its special expertise for the betterment of the community as a whole. Faculty and students are encouraged to participate in the larger community through service and academic activities. But most of all, Fairfield serves the wider community by educating its students to be socially aware and morally responsible persons.

Fairfield University values each of its students as an individual with unique abilities and potentials, and it respects the personal and academic freedom of all its members. At the same time it seeks to develop a greater sense of community within itself, a sense that all of its members belong to and are involved in the University, sharing common goals and a common commitment to truth and justice, and manifesting in their lives the common concern for others which is the obligation of all educated, mature human beings.

The University

Fairfield University, founded in 1942, became the 26th institution of higher learning operated by the Jesuits in the United States - the inheritor of a tradition of learning and scholarship that dates back to 1540, when St. Ignatius Loyola founded the Society of Jesus on the principle of active service in the world.

Many Jesuits chose education as their field of service. A basic Jesuit principle, the striving for excellence, led them to create schools that have become renowned for their academic quality. Over the centuries, a Jesuit education has come to mean a high standard of academic and intellectual discipline within Judeo-Christian values.

The majority of Fairfield's faculty are lay people who represent many faiths and many creeds, and students are selected without regard to sex, race, color, marital status, religion, age, national origin or ancestry, disability or handicap. There is one common tie - a commitment to moral and spiritual values. This is the cornerstone of Fairfield's academic philosophy - the search for truth through learning.

Fairfield University comprises the College of Arts and Sciences, the School of Business, the School of Nursing, the Graduate School of Education and Allied Professions, the School of Continuing Education and the BEI School of Engineering.

Located in America's "academic corridor" - that short expanse from New York City to Boston that contains the world's largest concentration of colleges and universities - Fairfield provides access to many cultural, recreational, social and intellectual programs. In addition to its proximity to New York City and all the recreational possibilities available there, the immediate area offers many fine local theaters and cinemas, restaurants, botanical and zoological gardens, and many excellent beaches and boating facilities.

Fairfield's 225-acre campus is among the most beautiful in the country. Created from two large private estates, it retains a gracious, tranquil atmosphere. There are many wooded areas, lawns, gardens and pleasant walks, and, from several vantage points, a broad view of the blue waters of Long Island Sound.

All of the University's buildings are modern and well-suited to the needs of its students. Some of the outstanding buildings are the Bannow Science Center; the Nyselius Library; the Recreational Complex; Donnarumma Hall; Canisius Hall; the Regina A. Quick Center for the Arts, with a 730-seat theater, a smaller experimental theater, art gallery; and the Egan Chapel of St. Ignatius Loyola.

Accreditation

Fairfield University is fully accredited by the New England Association of Schools and Colleges, which accredits schools and colleges in the six New England states. Accreditation by one of the six regional accrediting associations in the United States indicates that the school or college has been carefully evaluated and found to meet standards agreed upon by qualified educators.

The State of Connecticut Department of Education has approved the programs for teacher certification at the secondary level and graduate programs leading to certification in specialized areas of education in the Graduate School of Education and Allied Professions. In addition, its School and Community Counseling programs have received accreditation from the Council for Accreditation of Counseling and Related Educational Programs (CACREP), a specialized accrediting body recognized by the Council on Recognition of Postsecondary Accreditation (COPA).

The School of Nursing has been accredited by the National League for Nursing and approved by the Connecticut Department of Higher Education and by the Connecticut State Board of Examiners for Nursing.

In October 1980, the State of Connecticut Department of Higher Education granted licensure for the Master of Science in Financial Management program. In February 1983, the State of Connecticut Department of Higher Education granted full accreditation for the Master of Science in Financial Management program.

On August 1, 1994, Bridgeport Engineering Institute, BEI, an independent engineering college founded in 1924, merged with Fairfield University to form the University's sixth academic division, named the BEI School of Engineering of Fairfield University. BEI was licensed by the Connecticut Department of Higher Education in 1959 to grant the Associate in Engineering degree, in 1963 to grant the Bachelor of Science degrees in Electrical and Mechanical Engineering, and in 1992 the Bachelor of Science degree in Information Systems Engineering.

In July 1994 the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET) granted accreditation to the Bachelor of Science degree programs in Electrical Engineering and Mechanical Engineering.

In February 1996 the State of Connecticut Department of Higher Education approved the merger of the Bridgeport Engineering Institute and Fairfield University as the BEI School of Engineering of Fairfield University.

The University holds memberships in the National Association of Independent Colleges and Universities, American Council for Higher Education, American Assembly of Collegiate Schools of Business, American Association of Colleges for Teacher Education, American Council on Education, American Society for Engineering Education, Association of Jesuit Colleges and Universities, Connecticut Association of Colleges and Universities for Teacher Education, Connecticut Conference of Independent Colleges, Connecticut Council for Higher Education, National Catholic Educational Association, National League for Nursing, and New England Business and Economic Association.

Fairfield University complies with the Family Educational Rights and Privacy Act of 1974 (also known as the Buckley Amendment) which defines the rights and protects the privacy of students with regard to their educational records.

This catalogue contains specific information for the engineering programs at Fairfield University. It will be useful as a source of continuing reference and should be saved by the student.

The provisions of this catalogue are not to be regarded as an irrevocable contract between Fairfield University and the student. The University reserves the right to change any provision or any requirement at any time.

General Information

University Course Numbering System

Undergraduate

01-99	Introductory courses
100-199	Intermediate courses without prerequisites
200-299	Intermediate courses with prerequisites
300-399	Advanced courses, normally limited to juniors and seniors and open to graduate students with permission

Graduate

400-499	Graduate courses, open to undergraduate students with permission
500-599	Graduate courses

Financial Aid

There are a number of types of financial aid available. None discriminate on the basis or race, religion, color, sex or national origin and all students are urged to review the list to see which will fill a need; counseling in this area is available through the Financial Aid Office.

The following is an outline of the various Financial Aid programs, all of which require that a student is making satisfactory academic progress, and follows the application procedure for each.

Need-based programs

These are government-sponsored programs available to students whose educational expenses (determined from standardized student budgets, modified if appropriate) exceed their expected family contribution to their education (determined from one of two federally approved formulae which consider both income and assets).

Pell Grant

This is a federally-sponsored program that awards grants (no repayment) of up to $2,440 per year depending on need and the number of credits taken. To qualify, a student must take at least six credits, must not have a previous baccalaureate degree, must be a U.S. citizen or an eligible non-citizen, must not be in arrears on any federal educational loans and must be registered with selective service if required. In general, Pell Grants are limited to five years of study.

While it will not be posted until later in a semester, a firm commitment for Pell Grants, based on a particular course load, will be made after receipt of a Student Aid Report by the Financial Aid Office. These reports will be sent to students by the Department of Education after FAFSAs are filed. All Pell grants are applied to a student's tuition account.

To apply, fill out a Free Application for Federal Student Aid (FAFSA) for the 96/97 school year; check question 3 on the form "yes"; and submit it to the College Scholarship Service, Princeton, N.J., in the envelope provided - not to the University. All forms are available from the University's Financial Aid Office.

Connecticut Independent College Student Grant (CICS)

This is a state-sponsored program available to students who are Connecticut residents, have no baccalaureate degree and demonstrate need. These awards are also grants and need not be repaid. Formulae for both educational cost and family contribution differ from those used in Pell, so a student may well qualify for one but not the other. Any Pell Grant or employer tuition reimbursements are deducted from "need" prior to determination of CICS eligibility.

CICS grants are normally not determined until the final month of a semester, at which time the student is advised of any award.

To apply, submit a FAFSA form, as outlined under the section entitled Pell Grant.

Federal Stafford Loans (formerly Federal Guaranteed Student Loans)

These are low-cost loans made by a bank but guaranteed and underwritten by the federal government. Interest is not charged nor must repayment begin until six months after a student graduates, leaves college, or takes fewer than six credits per term.

Requirements are generally the same as for Pell Grants, but any employer reimbursement, Pell Grant or CICS Grant must be used to reduce need before a Stafford Loan is approved.

Certification of Stafford Loans is also normally withheld until late in a semester.

To apply for a Stafford Loan, submit a FAFSA form and Pell form and, also obtain a loan form from your bank or the Financial Aid Office.

PLUS Loans and Supplemental Loans for Students (SLS)

PLUS loans are for parent borrowers for dependent students and SLS's are for students. They differ from Stafford Loan's in that (1) no need must be shown, (2) interest is slightly higher than Stafford Loans, and (3) the borrowers will be charged interest within 60 days of the loan. Principal repayment is the same as for Stafford Loans. Most banks will also permit interest to accumulate and be added to the principal.

Application forms must be obtained from a bank and a FAFSA form must be completed. No 1040's are necessary. The amount loaned may not exceed a student's cost of education less any amounts possible from Pell, Stafford or CICSG programs. Disbursement practices are similar to those for Stafford loans.

Scholarships

Scholarship funds are contributed by corporations, alumni, faculty and friends of the BEI School of Engineering. In addition, the School had set aside a portion of its funds prior to 1994 to provide scholarships for entering and upper class students.

These scholarships carry the name of the donors or names of corporations and organizations which have made annual grants of scholarship funds to BEI.

Named scholarships provided by sponsors and presented to students upon the recommendation of the Scholarship Committee are as follows:

Theodore Meeker Perkins Memorial Award
Sponsor-Friends and Family

Daniel J. Diasio, Sr. Scholarship
Sponsor-Richard L. Diasio

SAME Scholarship
Sponsor-Society of American Military Engineers

Martha K. Rogers Memorial Scholarship
Sponsor-Bequest

Alexis & Barbara Zaveruha Scholarship
Sponsor-Victor Zaveruha

William F. Hawkins Memorial
Sponsor-Friends and Family

Joseph McNamara Memorial
Sponsor-Friends and Bequest

Perkin Elmer Corp. Scholarship

Pitney Bowes Corp. Scholarship

Sikorsky Aircraft Corp. Scholarship

Supporting Corporations and Organizations

The following corporations and organizations contributed to the BEI School of Engineering in 1995-1996:

AlliedSignal Foundation, Inc.
Bodine Foundation
Dresser Industries
Greater Bridgeport Area Foundation
Indiana Power Transmission
Industra, Inc.
Mims Rigging
Nash Engineering
Omega Engineering
Perkin Elmer
Pitney Bowes
Sikorsky Aircraft
Society of Manufacturing Engineering
Textron Lycoming
United Technologies
U.S. Baird Corporation
Warner Lambert Company

Some Noted University Buildings

Library

The Nyselius Library contains more than 268,000 carefully selected bound volumes, the equivalent of 62,500 volumes in microform, and 1,830 journals and newspapers. A media resources department provides convenient use of audio-visual and other non-print materials, and supervises a microcomputer lab. The reference department offers interlibrary loan and on-line and CD-ROM bibliographic search services. The stacks are open to all students and there is study space, primarily at individual carrels, for more than 600 students. For the convenience of the campus community, the library is open 104 hours a week except during vacation periods.

Because the library has an automated circulation system, students must obtain barcode labels for their University identification cards at the circulation desk before they can borrow materials.

Reimbursement by Employer

Many corporations, school systems and hospitals have a tuition reimbursement plan for their employees.

Students should check their company policies and procedures which apply to degree studies.

Tax Deductions

Treasury regulation (1.162.5) permits an income tax deduction for educational expenses (registration fees and cost of travel, meals and lodging) that: (1) maintain or improve skills required in one's employment or other trade or business, or (2) meet express requirements of an employer or a law imposed as a condition to retention of employment job status or rate of compensation.

Veterans

Veterans may apply educational benefits to degree studies pursued at Fairfield University. Veterans should submit their file numbers at the time of registration. The University Registrar's office will complete and submit the certification form.

The Barone Campus Center

The Barone Campus Center is the social focal point for all sectors of the University community. The center is open weekdays and Fridays from 8 a.m. to midnight; and Saturdays and Sundays from 8 a.m. to 11 p.m.

Included in the Barone Campus Center facilities are: the bookstore (open Monday-Friday, 9 a.m.-4:30 p.m., telephone 259-2324), game room, mail room (open Monday-Friday, 9:30 a.m.-3:45 p.m.), ride boards, weekly activities bulletin, and the Snack Bar (open Monday-Friday, 8 a.m.-midnight; Saturday and Sunday, noon-11 p.m.). For more information, call the Barone Campus Center Information Desk from 9 a.m. to 9 p.m., (203) 254-4222.

Recreational Complex

The Recreational Complex is a multi-purpose facility with a 25-meter swimming pool; a fieldhouse unit that can be used interchangeably for badminton, volleyball, tennis, basketball and jogging; enclosed courts that can be used for handball and racquetball; two exercise rooms; a multi-purpose room that can be used for modern dance, slimnastics and exercising;

two saunas and a whirlpool bath; a sunbathing deck; and locker rooms.

Evening part-time students are eligible to join during each semester they are enrolled upon presentation of a University identification card validated for the current semester. Membership fee information is available at the Recreational Complex. The office is open from 10 a.m. to 5:30 p.m., Monday through Friday. For complete information, call (203) 254-4140, during office hours.

The Center for the Arts

The Regina A. Quick Center for the Arts features a 730-seat theater, a smaller experimental theater, and an art gallery with a full schedule of events and exhibits throughout the year.

Student Services

Campus Ministry

The Campus Ministry Team is composed of four Jesuits, laywomen, and a Protestant minister. The members of the ministry team provide counseling and spiritual direction, foster prayer life, coordinate interfaith and ecumenical religious events, conduct liturgies and retreats, and encourage student-led ministries and participation in community service and international mission opportunities. The ministers are available at any time for student's needs and can be reached at the Pedro Arrupe, S.J. Campus Ministry Center or in their residence hall suites.

Housing

University residence hall facilities on campus are reserved for undergraduates. Off-campus housing for students can be arranged on an individual basis through the coordinator of off-campus housing, Loyola Hall.

Refund of Tuition

All requests for tuition refunds must be submitted to the appropriate Dean's office immediately after the withdrawal from class (Fees are not refundable). The request must be in writing and all refunds will be made based on the date the notice is received or, if mailed, on the postmarked date according to the following schedule. Refunds of tuition charged on either a MasterCard, VISA, or American Express must be applied as a credit to your charge card account.

	Amount Refundable
Before first scheduled class	100%
Before second scheduled class	90%
Before third scheduled class	80%
Before fourth scheduled class	60%
Before fifth scheduled class	40%
Before sixth scheduled class	20%
After sixth scheduled class	0

Refund takes 4-6 weeks to process.

Note: If federal or state financial aid is utilized, the refund amount may be less than the above percentages.

Withdrawal

Students who wish to withdraw from a single course, all courses, or the School, must submit a written statement of their intention to the appropriate Dean for his or her approval. Failure to attend class or merely giving notice to an instructor does not constitute an official withdrawal and may result in a penalty grade(s) being recorded for the course(s). In general, course withdrawals are not approved after the sixth scheduled class. Exceptions may be approved by the Dean in extreme cases.

Transcripts

Transcript requests should be made in writing to the University Registrar's Office in Canisius Hall. There is a $4 fee for each copy. Students should indicate the program and dates that they attended. In accordance with the general practices of colleges and universities, official transcripts with the University Seal are sent directly by the University. Requests should be made one week in advance of the date they are needed. Requests are not processed during examination and registration periods.

Academic Grievance

The purpose of procedures for review of academic grievances is to protect the rights of students, faculty, and the University by providing mechanisms for equitable problem-solving.

A "grievance" is defined as a complaint of unfair treatment for which a specific remedy is sought. It excludes circumstances which may give rise to a complaint for which explicit redress is neither called for nor sought, or for which other structures within the University serve as an agency for resolution.

Academic grievances either relate to procedural appeals or to academic competence appeals.

Procedural appeals are defined as those seeking a remedy where no issue of the quality of the student's work is involved. For example, a student might contend that the professor failed to follow previously announced mechanisms of evaluation.

Academic competence appeals are defined as those seeking a remedy because the evaluation of the quality of a student's work in a course is disputed.

Remedies would include but not be limited to awarded grade changes, such as permission to take make-up examinations or to repeat courses without penalty.

The procedures defined here must be initiated within a reasonable period (usually a semester) after the event which is the subject of the grievance.

Informal Procedure

Step one: The student attempts to resolve an academic grievance with the faculty member, Department Chair, or other individual or agency involved. If, following this initial attempt at resolution, the student remains convinced that a grievance exists, she/he advances to step two.

Step two: The student consults the Chair, or other individuals when appropriate, bringing written documentation of the process up to this point. If the student continues to assert that a grievance exists after attempted reconciliation, she/he advances to step three.

Step three: The student presents the grievance to the Dean of the involved school, bringing to this meeting documentation of steps one and two. If the Dean's attempts at mediation prove unsuccessful, the student is informed of the right to initiate formal review procedure.

Formal Procedure

Step one: If the student still believes that the grievance remains unresolved following these informal procedures, she/he initiates the formal review procedure by making a written request for a formal hearing through the Dean to the Academic Vice President. Such a request should define the grievance and be accompanied by documentation of completion of the informal process. It should also be accompanied by the Dean's opinion of the grievance.

Step two: The Academic Vice President determines whether the grievance merits further attention. If not, the student is so informed. If so, the Academic Vice President determines whether it is a procedural or competence appeal. If it relates to a procedural matter, she/he selects a Dean (other than the Dean of the involved school) to chair a Grievance Committee.

If it relates to an academic competence matter, the Academic Vice President requests from the Dean involved the name of two outside experts to serve as a consultant panel in determining the merit of the student's grievance.

Step three: For procedural appeals, the Grievance Committee takes whatever steps are deemed appropriate to render a recommendation for resolving the grievance. The Committee adheres to due process procedures analogous to those in the Faculty Handbook.

For competence appeals, the Academic Vice President contacts the outside panel members and requests that they review the case in relation to its content validity.

Step four: The recommendation from either the Grievance Committee or the panel is forwarded to the Academic Vice President in written form, accompanied, if necessary, by any supporting data that formed the basis of the recommendation.

Step five: The Academic Vice President renders a final and binding judgment, notifying all involved parties. If the grievance involves a dispute over a course grade given by a faculty member, the Academic Vice President is the only University official empowered to change that grade, and then only at the recommendation of the committee or panel.

Security

The Security Department is responsible for the safety and security of persons and property associated with Fairfield University. The office is open, and security officers are on patrol, 24 hours year-round. Violations of University regulations which require immediate attention should be reported to the Security Department.

The Security office is located in Room 2 on the ground floor of Loyola Hall. To reach the department from an outside telephone line, dial 254-4090; from an inside line, dial extension 4090. In an emergency, dial 254-4090.

Parking

All vehicles must display a valid parking permit and park properly in the designated area. Parking permits may be obtained at the Security Department, Room 2, Loyola Hall. A valid University identification card or receipt of registration and a motor vehicle registration must be presented when registering a motor vehicle.

Unauthorized vehicles in handicapped, fire lane, or service vehicle spaces, will be towed at the owner's expense. A number of parking spaces have been designated for handicapped persons throughout the campus. Vehicles of handicapped persons displaying a current permit either from the state in which they reside or a University permit may park in these areas. A pamphlet detailing traffic and parking regulations is available at Security.

Special Events

A continuous series of special events including exhibitions, lectures, and dramatic and musical programs are scheduled throughout the academic year. These events are open to all members of the University community, and many of them are free. For a complete calendar of events contact the Barone Campus Center, ext. 4222.

The BEI School of Engineering Calendar 1996-97

Classes are offered primarily on Monday, Tuesday, Wednesday and Thursday evenings to accommodate those in the program employed full time. A few classes are offered Friday evenings and Saturday mornings.

Fall Semester 1996 (First Semester)

August 29	Convocation for entering students
August 30	Registration deadline (by mail)
September 4	Wednesday classes begin
September 5	Thursday classes begin
September 6	Friday classes begin
September 9	Monday classes begin
September 10	Tuesday classes begin
October 14	Columbus Day
October 18	Degree cards due for January graduation
November 27-29	Thanksgiving Recess
December 16	Monday classes, Final Exams
December 17	Tuesday classes, Final Exams
December 18	Wednesday classes, Final Exams
December 19	Thursday classes, Final Exams
December 20	Friday classes, Final Exams

Spring Semester 1997 (Second Semester)

January 10	Registration deadline (by mail)
January 13	Monday classes begin
January 14	Tuesday classes begin
January 15	Wednesday classes begin
January 16	Thursday classes begin
January 17	Friday classes begin
January 20	Martin Luther King Jr. Day, University holiday
February 7	Degree cards due for May graduation
March 10-14	Spring Recess
March 28	Good Friday, University holiday
April 29	Tuesday classes, Final Exams
April 30	Wednesday classes, Final Exams
May 1	Thursday classes, Final Exams
May 2	Friday classes, Final Exams
May 5	Monday classes, Final Exams
May 18	University Commencement

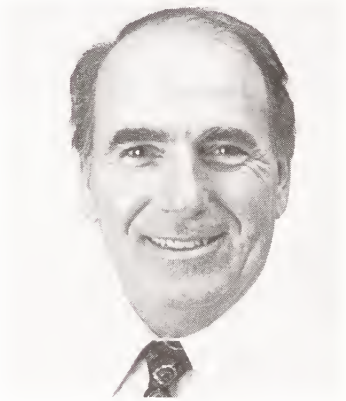
Summer Semester 1997 (Third Semester)

May 19	Classes begin
May 26	Memorial Day, no classes
June 12	Degree cards due for August graduation
July 4	Friday, Independence Day, no classes
July 21, 22, 23, 24, 25	Final Exams

The BEI School of Engineering

Welcome Message from the Dean of BEI

E. Hadjimichael, Ph.D.
Acting Dean



Richard G. Weber, Ph.D. P.E.
Associate Dean

Welcome to the BEI School of Engineering of Fairfield University, and congratulations on your decision to pursue an engineering career.

You have chosen a school that is devoted to serving the working student with responsibilities to family, community, and profession, as well as the traditional undergraduate student. BEI provides the opportunity to combine study, experience and professional practice, offering prospects for the best in engineering education. BEI engineering administrators, faculty, and counselors, are professionals in engineering education and in the technology that energizes Southwest Connecticut's diverse industry.

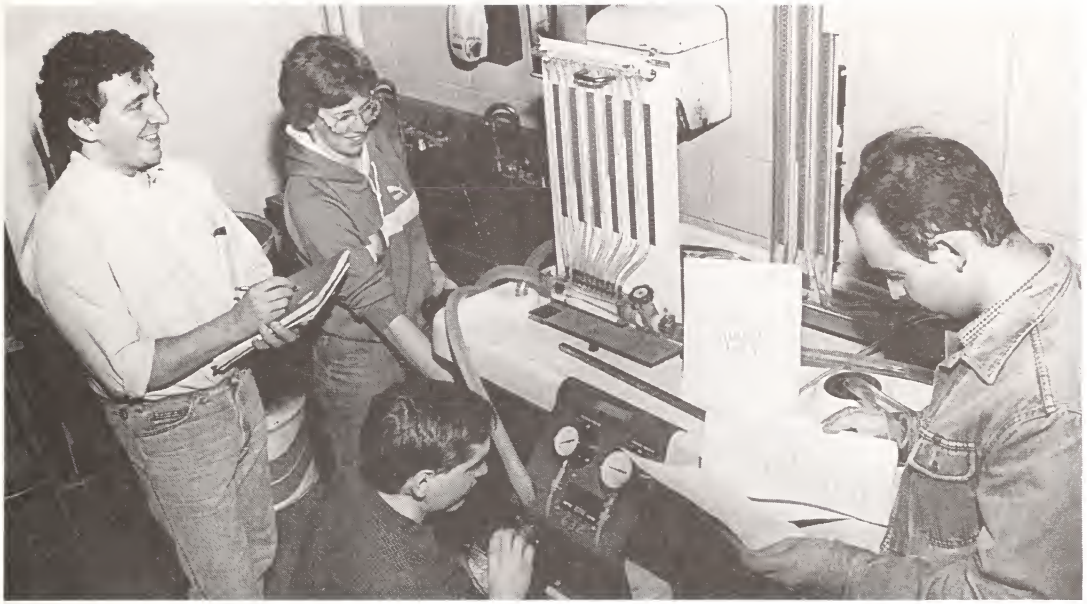
Keep and use this catalogue as your basic guide and reference for your entire career here at BEI. We have designed this document to serve several purposes. In addition to admission, financial, and scholarship information, the catalogue contains your Student Handbook including grading practices, standards of student conduct, and other important matters. The engineering degree requirements are presented in two versions: a listing of required courses, and a recommended course of study. Refer to this information in planning your program which you are urged to review with your counselor at least once a year. Be assured also that you will receive fair and realistic transfer credits for college-level work that you have completed elsewhere.

On behalf of the entire BEI family, I wish you success.

Cordially,

E. Hadjimichael

E. Hadjimichael, Ph.D.
Acting Dean



Mechancial Engineering lab assignment

Mission

In addition to the mission of Fairfield University described earlier in this catalogue, BEI continues the objectives of its predecessor, the Bridgeport Engineering Institute, which are in accord with the aims of the University.

The BEI School of Engineering of Fairfield University offers to the residents of Southwest Connecticut and nearby New York a quality education at the Baccalaureate and Associate levels in Engineering and related technology fields in an evening/weekend format of instruction for working adults, or in a day/evening format for traditional undergraduate students.

In support of this mission and to meet the needs of its students, their employers, and the community at large, the School is committed to:

- Provide the support services needed by non-traditional students who are fully employed individuals.
- Maintain a close working relationship with industry in order to better understand its needs and identify new opportunities to serve it.
- Maintain a close relationship with practitioners of the engineering profession for assistance in program assessment and guidance in program development.
- Continually improve the quality and currency of the instructional program.
- Provide special non-credit courses in engineering and related fields, particularly in emerging technologies, to graduate engineers, engineering managers and others who wish to advance their professional development.
- Provide an excellent teaching staff comprised of engineers and scientists who combine academic credentials with the stimuli of the innovative, dynamic environment of professional practice in an industrial environment.

The School offers programs leading to the degrees of Bachelor of Science in Computer and Information Systems Engineering, Electrical Engineering, and Mechanical Engineering including an option in Manufacturing Engineering. Courses required for the completion of these programs are presented in continuous and integrated sequences. This permits the student to complete the required work and elective courses without loss of time, but also at a pace which fits his/her personal academic needs.

Programs are also available leading to the degree of Associate in Engineering with options for the student's specialization in electrical or mechanical engineering fields.

Class sections are kept small so that instructors will have adequate time to give each student individual attention.

Some Frequently Asked Questions by Evening/ Part-time Students About BEI

Q. How long will it take to earn a B.S. degree?

A. Depending on how many courses you take each semester, and how many credits you transfer from previous college work, it could take less than two years to satisfy just the residency requirement for the B.S. degree. For a student without any previous college work, but who is able to follow the recommended program of evening study, it will take an average of six years for the B.S. degree.

Q. Do I have to take time off from work for counseling and resolving questions about the engineering programs?

A. No. BEI maintains a full staff of counselors and advisors in the evening from 6:30 p.m. to 9 p.m., Monday through Thursday.

Q. I haven't been in a classroom for several years, and my knowledge in mathematics is not current. Can I get help?

A. Yes. At admission, we will give you a math placement test to find out where you should start. Mathematics achievement is critical for success in an engineering program of study, so BEI provides an intensive course to prepare you for calculus. In addition, BEI provides free individual tutoring in mathematics on a daily basis, Monday to Thursday, from 6:30 to 9:30 p.m., and on Fridays by appointment. The Tutorial Center at McAuliffe Hall is also equipped with computers running mathematics software for self-paced learning.

Q. I am a working adult with a family. Will I feel out of place at BEI?

A. No. The average age of the student in the evening/ part time format is around 30, and about half the number of students pursuing an engineering degree are married and have children. BEI faculty and staff know full well the sacrifice and commitment that the BEI student is making in order to complete the work for a B.S. degree. The faculty and staff are determined that high standards of quality will be maintained in the course work, but at the same time recognize the need for flexibility that will accommodate the individual needs of the fully employed student.

Q. I have been working as an engineering technician for several years. I think I may have trouble sitting through a lecture given by someone who has never worked in an engineering office or out in the field. What are the BEI faculty like?

A. Most of the engineering faculty are practicing professionals. Most are senior engineers or engineering managers employed in industry, and have a commitment to teaching and, in addition, imparting their professional experience and learning to the next generation of engineers. Many faculty have taught over 20 years at BEI and at other institutions prior to joining BEI.

Instructional Resources

The BEI School of Engineering uses classroom and laboratory space at three campus locations in proximity to each other: the BEI main office, Deans, and counselors, are in McAuliffe Hall. Also, in McAuliffe are laboratories for Mechanical Engineering, Manufacturing Engineering, Information Systems Engineering, Robotics, Engineering Resource and Development, and CAD. A Tutorial Center and a Reading and Reference Lounge are also located in this building. Electrical Engineering, Physics, Chemistry and Computer Applications Laboratories are located at the Bannow Science Center. The majority of BEI classrooms are situated in Xavier Hall.

For locations, refer to the campus map on the inside back cover of this catalogue.

The engineering reference and circulating collection is housed in the University's Nyselius Library. The library continually cultivates its collection and services and upgrades its on-line databases and search procedures to support the School's curriculum as well as the overall intellectual development of its students.

Admission

Admission Policy

BEI admits students without regard to race, color, sex, age, religion, national origin, or marital status. Women and minorities are particularly encouraged to apply and to prepare for a career in Engineering.

All applications are reviewed and evaluated on an individual basis by admission counselors.

Applicants must satisfy the admission counselor that they possess the essential qualifications necessary for study in Engineering.

Applicants for admission who have not completed any college work should be graduates of an accredited secondary school, or should have passed the State High School Equivalency examination, or received a General Equivalency Diploma (GED). For acceptance into the Associate in Engineering degree program, the secondary work should include successful completion of four units (one unit is one year) in English, and one unit in Algebra. For acceptance into the Bachelor of Science degree program, the English requirement is the same, but a minimum of three units of Mathematics, including algebra, geometry, and trigonometry, or equivalent college-level mathematics is required. Preparation in chemistry, physics, and in one computer language, is strongly recommended.

Deficiencies may be satisfied by completing courses in the BEI preparatory program. Satisfactory placement, as determined by tests in mathematics and English, is required.

Transfer Admission

Students who have completed work at other accredited colleges may apply as transfer students.

An official transcript of all academic work and a catalogue with course descriptions must be provided by each institution previously attended, including secondary school.

Credit for college work accomplished at another accredited institution may be granted for equivalent BEI courses. Articulation agreements have been developed with several of the former Connecticut State Technical Colleges. These may serve as a basis for evaluation of technical program courses. In general, credits will be granted on a semester-hour basis for work in which the student received a C or better.

College transfer students should request that all transcripts be sent to the attention of the BEI Office in McAuliffe Hall. The transcripts must be received at BEI before transfer credits can be granted.

Credit by Examination and by Transcript

Credit for work previously accomplished may be granted when the student demonstrates proficiency by oral or written examination, or both, as required by the department chairperson, or by transcript from an accredited institution. The work that is presented for evaluation must be equivalent in full to one or more BEI courses. The College Level Examination Program (CLEP) in subject examinations is accepted for advanced standing or credit for equivalent BEI courses.

James Kristie, left, a senior electrical engineering major, received the Society of American Military Engineers (SAME) scholarship.

Advanced Placement

BEI accepts evidence of college-level achievement for advanced placement. BEI will accept course work completed with a final grade of 3 or higher in courses administered by the Advanced Placement Program of the College Board in the following subject areas:

English, U.S. History, Economics (micro), Government and Politics; Physics, Calculus AB and BC; Computer Science A and B.

Admission of International Students

BEI regularly enrolls students from many nations. International students must submit transcripts of all academic work and the results of English language tests no later than six weeks prior to the term in which they seek admission. International students must pay a $40 application fee (non-refundable) and half-year tuition before an I-20 form will be issued.

Students whose native language is other than English are required to demonstrate proficiency in English by achieving 550 or better in the TOEFL (Test of English as a Foreign Language).

Special Students

Students who are not candidates for degree programs may enroll for courses provided they are qualified to undertake the courses chosen. Such students are classified as special students

Measles/Rubella

Public Act 89-90 requires that all full-time or matriculated Connecticut college students born after December 31,1956 provide proof of adequate immunization against measles and rubella, including such documentation as a medical record, a physician's statement, or your elementary or secondary school health record. Exemptions will be granted only (1) for medical reasons, confirmed by a physician's statement; (2) if you have had measles and/or rubella and have a physician's or health department certificate so stating with laboratory evidence demonstrating immunity; or (3) if your religious beliefs do not allow you to be vaccinated and you sign a statement to that effect. If you claim a religious or medical exemption and there is an outbreak of measles or rubella on campus, you may be excluded from college activities, including classes and exams.

Adequate Immunization: MEASLES: All new and readmitted students born after December 31,1956 must provide verification of two doses of measles vaccine-one dose administered after January 1,1969 and a second dose after January 1,1980. If two doses of measles vaccine are required, you must wait at least 30 days before the second dose can be administered. RUBELLA: (German Measles) One dose administered after the student's first birthday is considered adequate immunization.

Tuition and Fees

The schedule of tuition and fees follows:

Application fee (not refundable)	$ 40
Registration per semester	20
Tuition per credit hour (11 or less)	295
(12 or more)	525
Change of course	10
Laboratory (per lab course)	20
Promissory note fee	25
Transcript	4
Commencement fee (Required of all degree recipients)	90
Returned check fee	20
Activity Fees (Elective)	
Basic Activity Fee (payable to the Engineers Club)	5
Membership in I.E.E.E. (payable to the Engineers Club)	28
A.S.M.E. Student Section Membership (payable to the Engineers Club)	20

The trustees of the University reserve the right to change tuition rates and to make additional charges whenever they believe it necessary.

Full payment of tuition and fees or authorization for billing a company must accompany registration. Payments may be made in the form of cash (in-person only), check, money order, MasterCard, VISA or American Express. The minimum charge on all credit card transactions is $50. All checks are payable to Fairfield University.

No degree will be conferred and no transcripts will be issued for any student until all financial obligations to the University have been met.

For the tuition refund policy, see page 10.

Deferred Payment

During the fall and spring semesters, students deemed eligible may defer payment on their tuition as follows:

For students taking less than six credits - At the time of registration the student pays one-half of the total tuition due plus all fees and signs a promissory note for the remaining tuition balance. The promissory note payment due date varies according to semester.

For students taking six credits or more - At the time of registration, the student pays one-fourth of the total tuition due plus all fees and signs a promissory note to pay the remaining balance in three consecutive monthly installments. The promissory note payment due dates vary according to the semester.

Failure to honor the terms of the note will prevent future deferred payments and affect future registrations.

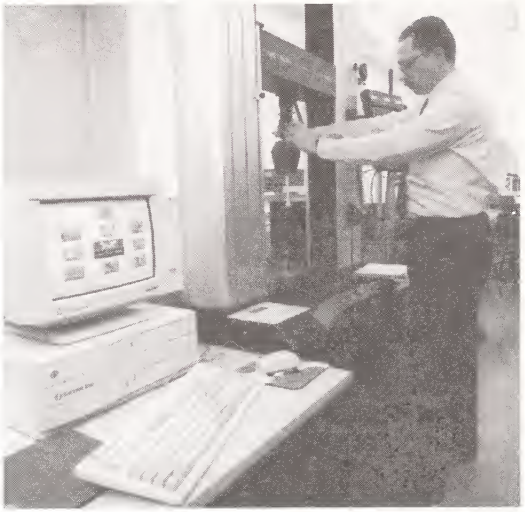
Reimbursement by Employer

Many corporations pay their employee's tuition. Students who are employed should check with their employers.

If students are eligible for company reimbursement, they must submit, at in-person registration, a letter on company letterhead stating approval of the course registration and the terms of payment. The terms of this letter, upon approval of the Office of the Bursar, will be accepted as a reason for deferring that portion of tuition covered by the reimbursement. Even if covered by reimbursement, all fees (registration, processing, lab or material) are payable at the time of registration. Students will be required to sign a promissory note which requires a $25 processing fee. The note states that an outstanding balance must be paid in full prior to registration for future semesters. A guarantee that payment will be made must be secured at the time of registration by either a MasterCard, VISA or American Express credit card. If the company offers less than 100% reimbursement, the student must pay the difference at the time of registration and sign a promissory note for the balance. Letters can only be accepted on a per semester basis. Failure to pay before the next registration period will prevent future deferred payments and affect future registrations.

Company Billing

A student may submit a written authorization from the student's employer clearly stating that the company will pay all or part of tuition and/or fees to the University directly with no conditions attached. In this case, no promissory note or agreement is required. Any portion of tuition or fees not covered by the authorization is due from the student upon registration.



Student Ellis Cooper testing materials in the mechanical engineering lab

Student Information

This section of the catalogue contains the student handbook and has been prepared to provide a ready source of information about the School's policies, rules and traditions. Within the handbook the student should find answers to many of the questions arising in daily relationships at the School.

The administration and faculty suggest that this book be kept for daily use. Matters of importance not included in the text will be conveyed in classroom announcements or through personal contact with the staff and faculty.

The catalogue of the School, issued every year, serves as a guide on such matters as curriculum, description of courses, tuition payments, and the college calendar for the current school year. It is suggested that students keep a permanent file of applicable catalogues in the event the curriculum and degree requirements change during their stay at the School.

The administration recognizes that the catalog in no way replaces personal contact with the staff and faculty all of whom are available to answer questions or advise when problems arise.

Administration

The School administration offices are open Monday to Thursday from 8:30 a.m. to 9:30 p.m., and Friday from 9:30 a.m. to 4:30 p.m. The offices are in McAuliffe Hall.

Laboratory and Classroom Facilities

Laboratory facilities are located in McAuliffe Hall and in the Bannow Science Center, and classroom facilities are in Xavier Hall.

Attendance

Regular attendance is essential if a student is to pursue successfully a course of study. Even a single absence may seriously affect a student's progress. Should illness or other situations arise causing a student to be absent for two consecutive classes in any subject without notifying the instructor or the School office, the student may be dropped from the course. To be reinstated in that course, the student must obtain written permission from the Dean.

The instructor should be notified in advance if an absence is anticipated. Arrangements can usually be made to get the assigned work so that homework may be completed and ready to be turned in upon return to class.

Withdrawals from Courses

If it becomes necessary to drop a subject because of illness, business, or personal reasons, notify the instructor as well as the BEI office, and immediately complete the appropriate form which must be approved by the Dean.

Course Selection

Courses should be chosen in accordance with the latest catalogue. Degree requirements are set by the catalogue for the year of admission. The students should make certain that all the prerequisites are satisfied for each course selection.

Counselors and advisors are available at McAuliffe Hall during regular evening hours from 6:30 to 9 p.m., Monday to Thursday. They should be consulted if there are questions pertaining to curriculum requirements. For more information, contact the BEI office at 254-4147. See page 25.

Modeling with the CNC equipment

Student Convocations

Convocations for the entire student body are held at least once each semester. The purpose of these meetings is to inform the students about changes in administration or faculty and to explain new developments in curriculum or plans for the future. Student feedback is encouraged.

The first assembly of the year is the convocation for all new students. The dean and department chairs are introduced and the student is introduced to school policy, rules, and operational procedures.

Student I.D.

Every student is issued an identification card with his/her photo and social security number. All students are requested to carry their I.D. when on campus.

Transcripts

Students requiring official transcripts should advise the University Registrar by letter or by means of a release form of the need for a transcript record and to whom this record should be addressed.

Mutual Responsibilities

The School's major consideration is the welfare of the student. It is its responsibility to provide the best education. However, it is the student's responsibility to relate any difficulties experienced in the course of study to the instructor or to the administration. Constructive criticism is always accepted and is responded to by appropriate action.

Parking

See page 12.

Academic Grievance

A detailed Grievance and Appeals Procedure is in force. All disputes or problems shall be presented in the manner for which provision is made in that procedure. See page 11.

Engineering Club Officers and Advisor

Student Behavior

It is expected that engineering students will conduct themselves in an orderly, refined and considerate manner. Violations will be noted in the student's record by attaching a copy of a letter to the student from the Dean citing the infraction. Disciplinary action may be taken as required, including expulsion which will make the student ineligible for the granting of the Fairfield University degree.

It is expected that every person in the Fairfield University higher education community will be treated with dignity and assured security and equality. However, individuals may not exercise personal freedoms in ways that invade or violate the rights of others.

Fairfield University condemns all acts of racism and bigotry and particularly condemns all acts of hatred, harassment or violence based upon race, ethnicity, disability, religious or cultural origin, gender or sexual orientation.

Procedure for Grading

Homework

Homework requirements are specified in course syllabi distributed at the beginning of each semester.

Final Examinations

The final examinations for all courses are two hours or more in length and should cover the work of the entire term.

Grading Criteria

The following system of grading is in use:

Grade Definition	Numerical Equivalency	Quality Points
A Outstanding	93 – 100	4.00
A-	90 – 92	3.67
B+	87 – 89	3.33
B Superior	83 – 86	3.00
B-	80 – 82	2.67
C+	77 – 79	2.33
C Acceptable	73 – 76	2.00
C-	70 – 72	1.67
D Minimal but passing	60 – 69	1.00
F	0 – 59	0
W	—	Withdrawal
I	—	Incomplete

Class Ranking System

Student rank is based on total credit hours completed and recorded

Class	Credit Hours Earned
Freshman	0 through 29
Sophomore	30 through 59
Junior	60 through 89
Senior	more than 90

Incomplete Work

If the required course work is not completed, (e.g. homework, tests, etc.) the grade "I" is recorded. A record of the work which has been completed however, remains on file in the BEI Office. Incomplete

course work must be made up before a student is entitled to a final course grade. The work must be completed within 30 days after the beginning of the next semester.

Students who receive a grade of "F" will not be permitted to make up the work. Since the course was failed, it must be repeated.

Grade Reports

Reports are issued to the student at the end of each semester.

Student report cards and transcripts are prepared using the letter grade; quality points are applied to determine the quality point ratio (QPR).

Audit

Course audit is restricted to courses taken at Fairfield University or to those taken elsewhere which are deemed transferable.

Satisfactory Academic Progress

The measure of a student's academic progress is not only the number and titles of courses that have been completed but also the overall quality of a student's work in these courses. This overall quality is expressed through an unweighted average of a student's grades, either for a term or cumulatively. When courses have been repeated, only the most recent effort will be used to calculate the cumulative percentage, although the earlier attempts will remain on a student's record and transcript.

While exceptions may be made through written application to the Dean, the following minimum cumulative averages should be met for a student to be considered to be making satisfactory academic progress:

Associate Degree

Credits *	0–29	30–59	over 59
Average (overall)†	1.8	1.9	2.0

Baccalaureate Degree

Credits *	0–34	35–68	69–102	over 102
Average (overall)†	1.8	1.9	2.0	2.0
Average (major)†	1.8	1.9	2.0	2.0

* Credits include those earned at BEI, transferred from another college, or obtained by examination.

† Cumulative averages are calculated based on BEI courses only.

Probation, Dismissal and Reinstatement

Students whose cumulative averages are below the aforementioned minimum satisfactory levels will be automatically placed on probation, a warning that a student's work must improve if he or she is to continue toward a degree. A second consecutive probation will be grounds for dismissal although a student may appeal this action in writing to the Dean.

Students who have been dismissed may be considered for readmission through written request to the Dean. Each request will be judged on its own merits, considering such factors as reason for earlier unsatisfactory progress, time lapse, changes in a student's family or job, and so forth.

Degree Requirements

Consult the specific requirements for the Bachelor or Associate Degrees elsewhere in the catalogue.

Residency Requirement

1. Bachelor Degree:
To merit a Fairfield University degree, at least 60 credits must be taken at Fairfield. This shall include a minimum of 24 semester hours of Engineering Science or Design core courses, Laboratories and Seminars. In addition, 15 semester hours must be in the Engineering major. The last 30 semester hours before graduation must be earned in coursework at Fairfield University. Exceptions to these conditions can be made only by written approval of the appropriate Department Chair.

2. Associate Degree:
The minimum residency requirement for the Associate Degree is 36 semester hours which shall include a minimum of 14 semester hours of Engineering Science or Design core courses, Laboratories and Seminars. A minimum of 9 semester hours must be in the Engineering major. Exceptions to these conditions can be made only by written approval of the appropriate Department Chair. The Department Chair shall provide a listing of applicable courses to the Dean for use by the counselors.

Time to Complete Degree

See page 27.

Dean's List

A Dean's List is compiled and issued after the completion of each year. Students carrying two or more subjects who have attained a QPR of 3.5 or better are qualified for the Dean's List.

Graduation Policy

A graduation application is required at the beginning of the semester when the student expects to graduate. Diplomas are awarded in January, May, and August. All students who have been awarded diplomas within the year are invited to participate in the May graduation ceremony.

The final responsibility for meeting program requirements rests with the student.

Students are strongly encouraged to see a counselor to verify eligibility prior to the start of their last semester.

The basic process is given below:

1.) The Counseling Office will evaluate a student's transcript at any time and will indicate the requirements which still need to be met. (It is recommended that students request an initial transcript evaluation when 30 credits have been earned. This should be done prior to paying the non-refundable graduation fee.)

2.) A candidate for graduation will be evaluated under the conditions of the most appropriate catalogue, as follows: The catalogue used will be that under which the candidate first enrolled except as noted in the following: (1) If the candidate was re-admitted to the college after an absence of three consecutive semesters, the catalogue used shall be that under which the candidate was re-admitted. (2) When the candidate changes program during attendance, the catalogue used shall be that which was in force at the time of the last change in program. (3) If there has been a change in general education requirements of the program, the candidate must complete these requirements prior to graduation.

Leave of Absence

Students may take up to one year (three consecutive semesters) leave of absence with prior approval of the Department Chair and the Dean. Such absence may be an acceptable reason for extension of one's studies unless the student extends absence beyond one year or fails to obtain prior approval before taking a leave of absence in excess of one year. Such a student will be treated as a re-entry.

A re-entry student's record will be reviewed and a new curriculum schedule planned based upon the program at the time of re-entry. Past BEI courses, as well as transfer credits, will be reviewed and applied to the re-entry program. Courses completed more than five years before re-entry will be reviewed for course content to assure that they are still current and satisfy the need for subsequent courses for which they are a prerequisite.

Who's Who in American Colleges and Universities

Students are selected for Who's Who in American Colleges and Universities based on their grade average (QPR) and personal achievement in life interests (i.e., community activity). The student's name and achievements are published in Who's Who in American Colleges and Universities.

The BEI Engineering Club

This is a club run by the students for the students in the interests of promoting professionalism. The club sponsors tours, seminars, and various other student activities.

For various functions and programs, the Club requires an activity fee. The fee covers participation in school functions in whole or part depending on cost. The fee may also go toward the procurement of various equipment and materials deemed beneficial to the student body.

A schedule of Club events will be posted at the beginning of the school year. All questions regarding Club operation should be directed to the BEI office.

BEI Student Services

Counseling/Advising

The School faculty, curriculum counselors, and administrative staff are available for counseling, guidance, and assistance during the hours of 6:30 to 9 p.m. on regular school evenings. Consult the posted and circulated listings to determine when specific advising personnel are scheduled to be on duty.

If a student wishes to discuss any matter regarding his or her records, schedule or standing, he or she is advised to contact the BEI office on the preceding school night, or call before noon of the day that the interview is desired.

Students are encouraged to have their transcript records reviewed annually in order to keep abreast of their progress. It is the policy of the School to provide counseling to students immediately upon their request, and take into account any problems, personal or academic, in order to help them achieve their goal. In some cases, Department Chairs are asked to discuss and evaluate the student's knowledge of a subject in which credit is requested. In some instances they may provide other means to determine credit, for example, a project may be assigned in the student's major and this project will be graded for credit.

It is also advised that students use this catalogue for keeping a record of all subjects as completed and the grade received. Students should use the tabulation of degree requirements in the catalogue in the year in which they started at the School as a basis for maintaining their record.

Students are advised that course and curriculum changes may affect their program of study. Course and curriculum changes will be published in subsequent issues of the catalogue. The student is responsible for integrating these changes into the program of study.

Advisors/Counselors

Anthony Guglielmo, Senior Counselor
(AS ME, Norwalk State Technical College; BS ME, Bridgeport Engineering Institute) Senior Project Engineer, Sikorsky Aircraft

Nicholas J. Ivanoff, Counselor
(AS ME, Norwalk State Technical College; BS ME, Bridgeport Engineering Institute; MS ME, University of Bridgeport) Mechanical Design Analyst A, Sikorsky Aircraft

Joseph L. LaGanza, Counselor
(BS ME, Bridgeport Engineering Institute) Principal Engineer, SVG Lithography Systems

Kim E. Siladi, Counselor
(AS, Norwalk State Technical College; BS EE, Bridgeport Engineering Institute) Senior Software Engineer, Executone Information Systems, Inc.

Faculty Advisors and Mentors

To expand BEI's services to students beyond the regularly scheduled advising/counseling, a system of student-faculty interaction has been developed utilizing faculty to serve as mentors and advisors. Department Chairs and Program Directors serve to assist and guide students in course selection, academic progress and career choice. Additional mentors serve to assist and guide students in the development of engineering design concepts throughout the students' work in the major. An important component of the faculty interaction with the student is to listen for feedback on course, program and university issues.

Tutorial Service

Free tutorial services are available at the Tutorial Center in McAuliffe Hall, in mathematics, the sciences and engineering. Students can take advantage of these services on a daily basis, 6:30 to 9:30 p.m., Monday to Thursday, and by appointment on Fridays. A monthly tutorial schedule is circulated on a regular basis. Computers with appropriate software for self-paced learning are also available in the Tutorial Center.

Executive Council, BEIAA

BEI Alumni Association

The BEI Alumni Association (BEIAA) is a not-for-profit organization whose members are graduates of the School. The BEIAA mission is to: (1) promote active alumni participation in BEI events and activities; (2) act as a liaison between the alumni and the administration of the Institute; and (3) manage the resources of the association. BEIAA is a unit of the Fairfield University Alumni Association.

As a service organization, the Alumni Association co-sponsors the Owl, a school newsletter which is distributed three times yearly to the student body and alumni.

At the annual BEIAA meeting, the graduating class is formally inducted into membership in the Association. New alumni are encouraged to become involved in the affairs of the Association through social, educational and business meetings that are held regularly.

Officers of the Alumni Association 1996
President, *Richard Peck, Class of 1995*
Vice President, *Felice Rizzo, Class of 1982*
1st V.P. Fairfield, *David Stern, Class of 1990*
1st V.P. Danbury, *Edward Keplinger, Class of 1973*
Treasurer, *Gerald L. Belanger, Class of 1983*
Secretary, *Esther Ziegler, Class of 1978*

Fellows of the Institute

BEI recognizes the contributions to the college by alumni, trustees, faculty and staff through election to BEI Fellow. This award is reserved for those individuals who have provided the college with 10 or more years of unusual devotion and service in teaching, administration, active operation or alumni activities.

New Fellows are nominated and elected by incumbent Fellows meeting at least once a year

The current roster of BEI Fellows is as follows:

William H. Alderson, Jr.
Drew Auth
Anand P. Bhatia
Otto J. Calder
Jerome G. Caplan
Daniel F. Dlugos
Alan Dubrow
Anthony T. Fonck
Richard F. Frye, Jr.
Anthony Guglielmo
Harvey Hoffman
Bruce Hunter
Edward Keplinger
Arthur H King
John M. Kowalonek
William M. Krummel
Ralph A. Langanke
George M Lasell
Frank J. Liburdy, Jr.
Albert Madwed
Gilbert C Mott
Joseph C. Olson
William J Owens
H. Wheeler Parrott
Melvin J. Rich
Felice P. Rizzo
Beatriz C. Ruiz
George Sargent
William Simics
John P. Walsh
Richard G. Weber
Robert E. Wisnieff
Esther Ziegler
Geza Ziegler

Community Service Fellows

BEI recognizes individuals who have made distinguished contributions to the communities served by the University. The award of Community Service Fellow is made to an individual whose activities have resulted in the enhancement of the health, educational or cultural resources of the community.

Current membership is:

Verne L. King, Dorothy B. Larson, Patrick A. Pallotto, John G. Phelan, Helen Wasserman, and Dr. Geraldine F. Johnson

The Fellows of BEI

BEI School of Engineering

DEPARTMENTS

Computer and Information Systems Engineering

Electrical Engineering

Mechanical Engineering

Degrees Offered

The BEI School of Engineering of Fairfield University offers three types of degree:

Bachelor of Science in Computer and Information Systems Engineering, Electrical Engineering and Mechanical Engineering;

Associate Degree in Engineering;

Certificate for course of study (in conjunction with the School of Continuing Education).

Summary of Degree Requirements

The minimum requirements for each degree are listed in the following pages. The recommended program of study and tabulation of required courses are listed under the appropriate departments. Upon entering BEI the Curriculum Counselor assigned will review the exact course of study required for each individual student to achieve these minimum requirements. For first-year degree students, the courses tabulated in the catalogue represent the degree requirement. For students entering with transfer credit or planning to take courses for transfer from other colleges while attending the School, modifications will be established in consultation with the assigned Curriculum Counselor. A student must receive an average grade of C (QPR of 2.00) or better in all BEI courses in the overall program and in the elected major.

Residency Requirements

1. Bachelor Degree:
The minimum residency requirement for the Bachelor Degree is 60 semester hours which shall include a minimum of 24 semester hours of engineering science or design core courses, laboratories and seminars. Additionally, 15 semester hours minimum must be in the Engineering major.

2. Associate Degree:
The minimum residency requirement for the Associate Degree is 36 semester hours which shall include a minimum of 14 semester hours of engineering science or design core courses, laboratories and seminars. In addition nine semester hours minimum must be in the Engineering major.

Time to Complete Degree

The recommended BEI Baccalaureate program without previous college work for students in the part-time evening format requires six years of study. An individual failing to meet this requirement may petition the Dean for an extension. Approval of the Department Chair is also required. Full-time students can complete the degree program in four to five years.

Minimum Requirements for the Bachelor of Science Degree in Engineering

Subjects	Minimum Credit Hours BS in ME	BS in ME/MANUFACT'G	BS in EE	BS in ISE
Mathematics, including Calculus, Differential Equations and Applied Engineering Mathematics	18	15	17	18
Computer Science	6	6	6	18
Computer Systems or Information Systems				12
Physical Sciences, including Physics and Chemistry	15	15	15	12
Engineering Science Core, including Engineering Graphics, Statics, Thermodynamics, Engineering Materials, Electrical Circuits	23	20	20	4
Arts, Humanities and Social Science: English, Economics, History, Literature, Religious Studies and Electives, Industrial Management and Engineering Economy	27	27	27	27
Mechanical Engineering Science and Design courses, including Laboratories, Seminars and Electives	44	35	3	3
Manufacturing Engineering Science and Design courses including Manufacturing and Robotics Laboratories electives	—	15	—	—
Electrical Engineering Science and Design courses, including Laboratories, Seminars and Electives	6	6	50	15
Information Systems Engineering	—	—	—	25
TOTAL	**139**	**139**	**138**	**134**

Minimum Requirements for the Associate in Engineering Degree

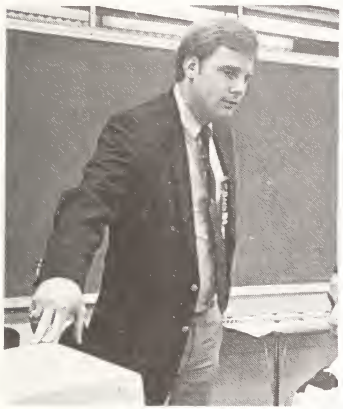
Subject	Minimum Credit Hours ME Option	EE Option
Mathematics, Calculus	9	15
Computer Science	3	3
Physical Sciences, including Physics and Chemistry	15	15
Engineering Science Core, Engineering Graphics, Statics, Electrical Circuits, Engineering Materials	17	17
Humanities and Social Science	12	12
Mechanical Engineering Science and Design	13	—
Electrical Engineering Science and Design	—	6
Industrial Management or Computer Science	3	3
TOTAL	**72**	**71**

Certificates

A four- to five-course concentration in a particular area of engineering skills. See page 36.

DEPARTMENTS

Computer & Information Systems Engineering



Mark Ramsey
Chairman

The Information Systems Engineer will be educated in the disciplines of:

- **Information Science:** Defined as the collection, classification, storage, retrieval and dissemination of knowledge.
- **Information Theory:** Defined as a theory that deals statistically with information, the measurement of its content in terms of its distinguishing essential characteristics or by the number of alternatives from which it makes a choice possible, and with the efficiency of processes of communication between men and machines (as in telecommunications or in computing machines).
- **Telecommunications:** As it pertains to network systems hardware and software, intelligent and/or dumb terminals, locally or remotely connected via coaxial or fiber optic cable, and LAN and WAN Network operating protocols.
- **Digital Electronics:** In recent times, all information, be it Alpha/Numeric Data or Audio/Video signals, is communicated in digital form, thus mandating a solid foundation in digital electronics and coding theory.
- **Client-Server Technology:** Pertains to distributed computer systems for the purposes of transmission and management of information in a business environment.

Faculty

Mark Ramsey, *Assistant Professor & Chairman*

John Porter, *Associate Professor & Client-Server Program Director*
Felice Rizzo, *Assistant Professor & Graphics/CAD Program Director*
Larry Clark, *Instructor*
John Crowley, *Associate Professor*
James DeCarli, *Instructor*
William Guelakis, *Instructor*
Karen Hills, *Professor*
Harvey Hoffman, *Professor*
Herb Kolodny, *Instructor*
Thomas Mannino, *Senior Instructor*
William Medalis, *Senior Instructor*
Dean Muccio, *Senior Instructor*
William Quartuccio, *Senior Instructor*
Rama Ramachandran, *Instructor*
Wayne Raulerson, *Senior Instructor*
Lawrence J. Reed, *Instructor*
Richard Siddall, *Instructor*
Mark Souza, *Instructor*
Earl Whiskeyman, *Instructor*

1996-1997 BACHELOR OF SCIENCE DEGREE

Computer & Information Systems Engineering

Recommended Program of Study - Computer Systems Option

SEMESTER	FIRST YEAR	SECOND YEAR	THIRD YEAR
FIRST	BE 341 Physics-Mechanics EN 11 English I MA 25 Calculus I	CS 131 Computer Science I MA 321 Differential Equations BE 343 Physics- Electricity and Magnetism	EE 230 Electron Devices BE 201 Chemistry I
SECOND	BE 342 Physics-Heat, Light, Sound EN 12 English II MA 26 Calculus II	EE 210 Circuit Analysis I EE 224 Advanced Mathematics CS 133 Software Des. w/C	EE 301 Transform Analysis IC 209 Probability & Statistics EE 280 Electrical Lab. (1)
THIRD	CD 211 Engineering Graphics I MA 227 Calculus III	HI 30 Foundations of Modernization in West EE 212 Computer-Aided Circuit Analysis	EE 245 Digital Electronics

SEMESTER	FOURTH YEAR	FIFTH YEAR	SIXTH YEAR
FIRST	IC 250 Intro to Info. Sys. EC 11 or EC 12 Economics IC 355 Database Mgnmt. Sys.	IC 385 Comp. Systems Eng. IC 222 Simulation Systems CS 322 Computer Architect. I	BE 374 Engineering Economy CS 331 Operating Systems ISE Elective
SECOND	IC 341 Obj. Oriented Design PY 132 Industrial Management EE 345 Digital Computing Systems	CS 324 Computer Architect. II IC 390 Computer Applications Lab (1) ISE Elective	ME 345 Thermal Engineering EE 350 Communication Systems ISE Elective
THIRD	IC 360 Communication Networks Visual and Performing Arts Elective	Religious Studies Elective History Elective	IC 392 Senior Project

All courses are 3 credit hours except as indicated in parentheses.

1996-1997 BACHELOR OF SCIENCE DEGREE

Computer & Information Systems Engineering

Recommended Program of Study - Information Systems Option

SEMESTER	FIRST YEAR	SECOND YEAR	THIRD YEAR
FIRST	BE 341 Physics-Mechanics EN 11 English I MA 25 Calculus I	CS 131 Computer Science I MA 321 Differential Equations BE 343 Physics- Electricity and Magnetism	EE 230 Electron Devices IC 355 Database Mngmnt. Systems BE 201 Chemistry I
SECOND	BE 342 Physics-Heat, Light, Sound EN 12 English II MA 26 Calculus II	EE 210 Circuit Analysis I EE 224 Advanced Mathematics CS 133 Software Des. w/C	IC 341 Obj. Oriented Design IC 209 Probability & Stat. EE 280 Electrical Lab. (1)
THIRD	CD 211 Engineering Graphics I MA 227 Calculus III	HI 30 Foundations of Modernization in West EE 212 Computer Aided Circuit Analysis	EE 245 Digital Electronics

SEMESTER	FOURTH YEAR	FIFTH YEAR	SIXTH YEAR
FIRST	IC 250 Intro to Info. Sys. EC 11 or EC 12 Economics IC 342 Implement. Client Ser.	IC 385 Comp. Systems Eng. IC 222 Simulation Systems CS 322 Computer Architect. I	BE 374 Engineering Economy CS 331 Operating Systems ISE Elective
SECOND	IC 344 Visual Programming PY 132 Industrial Management EE 345 Digital Computing Sys.	CS 324 Computer Architect. II IC 390 Computer Applications Lab (1) ISE Elective	ME 345 Thermal Engineering IC 345 Network Software ISE Elective
THIRD	IC 360 Communication Networks Visual and Performing Arts Elective	Religious Studies Elective History Elective	IC 392 Senior Project

All courses are 3 credit hours except as indicated in parentheses.

1996-1997 BACHELOR OF SCIENCE DEGREE

Computer and Information Systems Engineering

Tabulation of Degree Requirements: Core courses for Computer Systems and Information Systems Options

REQUIRED COURSES		CREDITS	PREREQUISITES
Mathematics: 18 Credits			
IC 209	Probability and Statistics	3	MA 26
MA 25	Calculus I	3	PreCalc, Trig, RM 104
MA 26	Calculus II	3	MA 25
MA 227	Calculus III	3	MA 26
MA 321	Differential Equations	3	MA 227
MA 323	Advanced Mathematics	3	MA 321
Computer Science: 18 Credits			
IC 222	Simulation Techniques	3	MA 321, IC 209, CS 133
CS 131	Computer Science	3	MA 227
CS 133	Software Design with C	3	CS 131
CS 322	Computer Architecture I	3	EE 345
CS 324	Computer Architecture II	3	CS 322
CS 331	Operating Systems	3	CS 322
Chemistry: 3 Credits			
BE 201	Chemistry I	3	Algebra or RM 104
Engineering Graphics: 4 Credits			
CD 211	Engineering Graphics/CAD I	4	
Information Systems Engineering: 25 Credits			
IC 250	Intro. to Information Syst Engr.	3	CS 133
IC 341	Obj. Oriented Des/Rel. Database	3	IC 355
IC 355	Database Management Systems	3	CS 133
IC 360	Communication Networks	3	IC 350, EE 345
IC 385	Computer Systems Engineering	3	IC 360, IC 380
IC 390	Computer Applications Lab	1	IC 360
IC 392	Senior Project	3	IC 385
____	ISE Elective	3	
____	ISE Elective	3	

(Continued on next page)

Required Courses for Computer & Information Systems Engineering

(continued from page 32)

REQUIRED COURSES		CREDITS	PREREQUISITES
Arts, Humanities and Social Sciences: 27 Credits			
EC 11 or EC 12	Economics	3	EN 11
EN 11	English I	3	
EN 12	English II	3	EN 11
HI 30	Foundations of Modernization in the West	3	
____	Religious Studies Elective	3	
____	American History Elective	3	EN 11
____	Visual and Performing Arts Elective	3	
	Industrial Management:		
BE 374	Engineering Economy	3	MA 26, EC 11 or EC 12
MG 21	Organizational Behavior & Management	3	
OR			
PY 132	Industrial/Organizational Psychology	3	EC 11 or EC 12
Physics: 9 Credits			
BE 341	Physics-Mechanics	3	MA 26
BE 342	Physics-Heat Light Sound	3	BE 34
BE 343	Physics-Electricity and Magnetism	3	MA 227, BE 342
Mechanical Engineering: 3 Credits			
ME 245	Thermal Engineering	3	MA 321, BE 342
Electrical Engineering: 15 Credits			
EE 210	Circuit Analysis I	3	MA 227, BE 343
EE 212	Computer Aided Circuit Analysis	2	EE 210, CS 131, MA 321
EE 230	Electron Devices	3	EE 210
EE 245	Digital Electronics	3	EE 230
EE 280	Electrical Laboratory	1	EE 230, EE 211 or EE 212
EE 345	Digital Computing Systems	3	EE 245

(Continued on next page)

Required Courses for Computer & Information Systems Engineering

(continued from page 33)

REQUIRED COURSES		CREDITS	PREREQUISITES
EITHER			
Computer Systems Option: 12 Credits			
EE 220	Linear Circuit Analysis	3	EE 212, MA 323
EE 301	Transform Analysis	3	EE 220
EE 350	Communication Systems	3	EE 301
____	ISE Elective	3	
OR			
Information Systems Option: 12 Credits			
IC 342	Implementing Client-Server Infrastructure	3	IC 341
IC 344	Visual Programming	3	IC 342
IC 345	Network Software	3	IC 341
____	ISE Elective	3	

TOTAL Degree Credit Requirements: **134**

SPECIAL PROGRAM FEATURES

Information Systems Engineering

A. Advanced Standing

In instances when prospective students for the ISE program have completed significant college-level work at other institutions, the transferability of credits will be decided on an individual basis. In most cases, course titles and content, which clearly correspond to the BEI School of Engineering courses, will be decided expeditiously. In all cases, a course of study will be structured to satisfy the degree requirements in the most efficient manner. An example is given below for a student who has recently earned a B.S. in Electrical Engineering, and has been granted the maximum transferable credits:

REQUIRED COURSES		CREDITS	PREREQUISITES
Information Systems Engineering: 22 Credits			
IC 250	Intro. to Information Systems Engineering.	3	CS 133
IC 341	Object Oriented Design/Relational Database	3	IC 355
IC 355	Database Management Systems	3	CS 133
IC 360	Communication Networks	3	IC 250, EE 345
IC 385	Systems Engineering	3	IC 360
IC 390	Computer Application Lab	1	IC 360
IC 392	Senior Project	3	IC 390
____	ISE Elective	3	
Computer Science: 15 Credits			
IC 222	Simulation Techniques	3	MA 321, IC 209, CS 133
CS 133	Software Design with C	3	CS 131
CS 322	Computer Architecture I	3	EE 345
CS 324	Computer Architecture II	3	CS 322
CS 331	Operating Systems	3	CS 322

TOTAL Degree Requirements **37** Credits

B. Program Segments (Subsets of the total program)

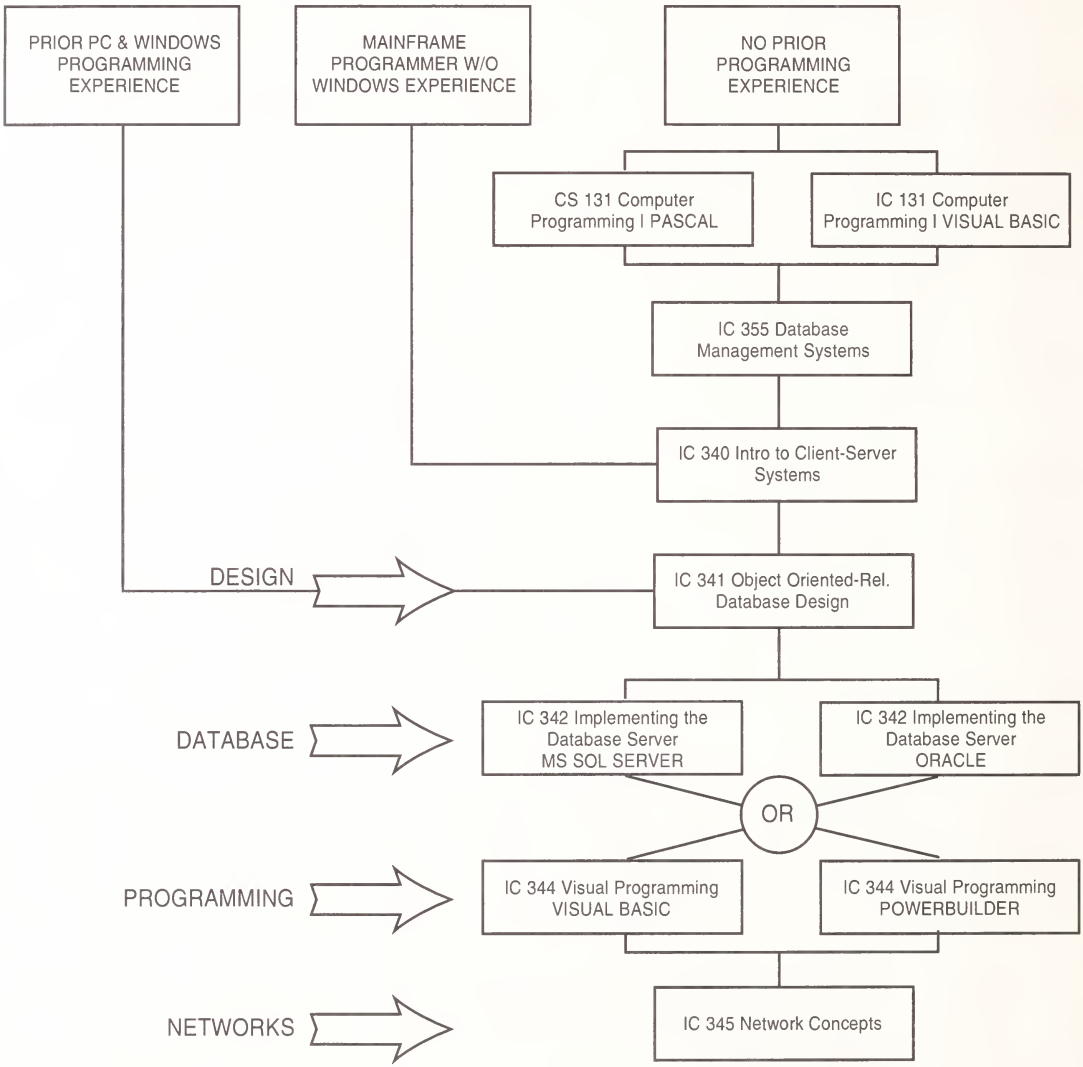
Many prospective students are interested in completing only an identifiable portion of the full-degree program, not wishing to complete all the degree requirements. Such students usually have accomplished considerable college work and even attained advanced degrees. There is a great number of possible entry points, and a wide range of options, as shown in the following example.

EXAMPLE: With a computer systems background, aiming for a degree in Information Systems Engineering:

IC 250	Introduction to Information Systems
IC 341	Object Oriented Design/Relational Database
IC 342	Implementing Client-Server Infrastructure
IC 344	Visual Programming
IC 355	Database Management
IC 360	Communication Networks
IC 385	Computer Systems Engineering

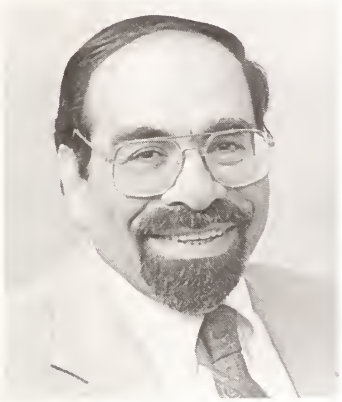
In the framework of the Information Systems Engineering Option, BEI offers an Information Technology Program (Client/Server) and, in conjunction with the School of Continuing Education of Fairfield University, it grants a Client/Server Technology Certificate. The course progression for this concentration is shown below:

ISE — Client/Server Certificate Course Sequence & Prerequisites



In order to earn a Certificate in Client-Server Technology, the student must complete four courses which consist of the following: one course from the DESIGN segment, one course from the DATABASE segment, one course from the PROGRAMMING segment, and one from the NETWORK segment.

Electrical Engineering



Harvey F. Hoffman
Chairman

The goal of the Bachelor of Science in Electrical Engineering program at the BEI School is to prepare the student for a career in electrical and electronic system and subsystem design with the potential for growth into engineering management.

This is an ABET-accredited program of study. The first years of the program place major emphasis on basic mathematics and physical sciences to provide the background for the analytical approach used in the engineering science and design courses. Introductory courses are taught with an engineering applications focus. After completing the preparatory mathematics, science, and liberal arts courses a basic understanding in electrical, mechanical, and materials engineering concepts is developed.

In addition, courses in engineering economy and management and further liberal arts studies are provided to improve the students' communication skills and develop an appreciation for his/her career environment. Building on the basic engineering science core, advanced courses in electrical engineering further develop the knowledge of engineering science. There is increasing emphasis on the use of design assignments to familiarize the student with techniques used to solve practical engineering problems. To permit the student to tailor his/her program to specific career objectives, advanced elective courses are included in the later years of the baccalaureate program.

The classroom lecture and recitation studies are supplemented by laboratory work and computer applications designed to expand the student's understanding of the analytic and physical principles and to provide hands-on experience.

Faculty

Harvey Hoffman, *Chairman & Professor*
Robert E. Wisnieff, *Chairman Emeritus & Professor*
Denton Pearsall, *Professor*
Vincent Bello, *Assistant Professor*
Paul Botosani, *Professor*
Paul Danzer, *Senior Instructor*
Jeffrey Denenberg, *Associate Professor*
Fred DePonte, *Professor*
Bernard Dickens, *Instructor*
Hai K. Do, *Instructor*
Carl Fagerholm, *Instructor*
Robert A. Fisch, *Associate Professor*
Pradeep Govil, *Associate Professor*
Sarma Gullapalli, *Professor*
Abdul A. Hye, *Associate Professor*
William Janeff, *Professor*
Edward G. Keplinger, *Senior Instructor*
Clement R. Pizzo, *Associate Professor*
Lawrence J. Reed, *Senior Instructor*
Albert Seedman, *Instructor*
Robert Wojna, *Instructor*

1996-1997 BACHELOR OF SCIENCE DEGREE

Electrical Engineering

Recommended Program of Study

SEMESTER	FIRST YEAR	SECOND YEAR	THIRD YEAR
FIRST	BE 341 Physics-Mechanics EN 11 English I MA 25 Calculus I	ME 201 Statics MA 321 Differential Equations BE 343 Physics- Electricity and Magnetism	EE 230 Electron Devices and Applications EE 220 Linear Circuit Analysis BE 201 Chemistry I
SECOND	BE 342 Physics-Heat, Light, Sound EN 12 English II MA 26 Calculus II	EE 210 Circuit Analysis I EE 224 Advanced Mathematics CS 131 Computer Science I	EE 301 Transform Analysis BE 202 Chemistry II EE 281 Electrical Laboratory (1)
THIRD	CD 211 Engineering Graphics-CAD I (4) MA 227 Calculus III	HI 30 Foundations of Modernization in West EE 212 Computer Aided Circuit Analysis (2)	EE 245 Digital Electronics Elective - Visual and Performing Arts

SEMESTER	FOURTH YEAR	FIFTH YEAR	SIXTH YEAR
FIRST	EE 302 Feedback Systems Engineering EC 11 Economics or EC 12 EE 330 Electron Device Models	EE 345 Digital Comp. Systems ME 205 Strength of Materials I MF 206 Engineering Materials	BE 374 Engineering Economy MF 390 Engineering Seminar Elective Major 2
SECOND	CS 132 Computer Science II PY 132 Industrial Management EE 332 Electronic Engineering	EE 350 Communications Systems EE 321 Fundamentals of Electric Fields Elective Major 1	ME 245 Thermal Engineering ME 390 Engineering Seminar Elective Major 3
THIRD	EE 380 Intermediate Electrical Laboratory (1) EE 376 Elect. System Design Analysis EE 320 Vector Analysis (2)	Religious Studies Elective History Elective	EE 382 Advanced Electrical Project (2)

* The Advanced Electrical Project may be taken as independent study after the student has completed the core (non-elective) EE courses and one elective.

Engineering seminar 390 is recommended for semesters 1 and 2 of final year.

All courses are 3 credit hours except as indicated in parentheses.

1996-1997 BACHELOR OF SCIENCE DEGREE

Electrical Engineering

Tabulation of Degree Requirements

REQUIRED COURSES		CREDITS	PREREQUISITE
Mathematics: 17 Credits:			
MA 25	Calculus I	3	Precalculus, trig, RM 104
MA 26	Calculus II	3	MA 25
MA 227	Calculus III	3	MA 26
MA 321	Differential Equations	3	MA 227
EE 224	Advanced Mathematics	3	MA 321
EE 320	Vector Analysis	2	MA 321
Computer Science: 6 Credits:			
CS 131	Computer Science I	3	MA 227
CS 132	Computer Science II	3	CS 131
Chemistry and Materials: 9 Credits:			
BE 201	Chemistry I	3	Algebra or RM 104
BE 202	Chemistry II	3	BE 201
MF 206	Engineering Materials	3	BE 202
Engineering Graphics: 4 Credits:			
CD 211	Engineering Graphics CAD I	4	
Arts, Humanities and Social Sciences: 27 Credits:			
EC 11 or EC 12	Economics	3	EN 11
EN 11	English I	3	
EN 12	English II	3	EN 11
HI 30	Foundations of Modernization in the West	3	
____	Religious Studies Elective	3	
____	History/Social Science Elective	3	
____	Visual and Performing Arts Elective	3	
	Industrial Management:		
PY 132	Industrial/Organizational Psychology	3	EC 11 or EC 12
OR			
MG 21	Organizational Behavior & Management	3	
BE 374	Engineering Economy	3	MA 26, EC 11 or EC 12

(Continued on next page)

Required Courses for Electrical Engineering

(continued from page 39)

REQUIRED COURSES		CREDITS	PREREQUISITE
Physics: 9 Credits:			
BE 341	Physics-Mechanics	3	MA 26
BE 342	Physics-Heat, Light, Sound	3	BE 341
BE 343	Physics-Electricity and Magnetism	3	MA 227, BE 342
Mechanical Engineering: 9 Credits:			
ME 201	Statics	3	MA 25, BE 341, CD 211
ME 205	Strength of Materials I	3	CS 132, ME 201
ME 245	Thermal Engineering	3	MA 321, BE 342
Electrical Engineering: 51 Credits:			
EE 210	Circuit Analysis I	3	MA 227, BE 343
EE 212	Computer Aided Circuit Analysis	2	EE 210, CS 131, MA 321
EE 220	Linear Circuit Analysis	3	EE 212, MA 323
EE 230	Electron Devices and Applications	3	EE 210
EE 245	Digital Electronics	3	EE 230
EE 280	Electrical Laboratory	1	EE 230, EE 211 or EE 212
EE 301	Transform Analysis Techniques	3	EE 220
EE 302	Engineering Feedback Systems	3	EE 301
EE 321	Fundamentals of Electromagnetic Fields	3	MA 228, EE 301
EE 330	Electron Amplifiers and Applications	3	EE 230
EE 332	Electronic Engineering	3	EE 330
EE 345	Digital Computing Systems	3	EE 245
EE 350	Communications Systems	3	EE 301
EE 376	Electrical System Design Analysis	3	EE 230, EE 212
EE 380	Intermediate Electrical Laboratory	1	EE 301, EE 332, EE 280
EE 382	Advanced Electrical Project	2	elective, EE 380
____	[3] Electives. Electrical Engineering	9	Refer to Course Descriptions
Seminar: 6 Credits:			
MF 390	Engineering Design Seminar	6	EE 380, Final Year

TOTAL Degree Credit Requirements: **138** Credits

1996-1997 ASSOCIATE IN ENGINEERING DEGREE

Electrical Engineering

Recommended Program of Study

SEMESTER	FIRST YEAR	SECOND YEAR	THIRD YEAR
FIRST	BE 341 Physics-Mechanics EN 11 English I MA 25 Calculus I	ME 201 Statics MA 321 Differential Equations BE 343 Physics- Electricity and Magnetism	EE 230 Electron Devices and Applications EC 11 or EC 12 Economics MF 206 Engineering Materials
SECOND	BE 201 Chemistry I BE 342 Physics-Heat, Light, Sound MA 26 Calculus II	EE 210 Circuit Analysis I BE 202 Chemistry II CS 131 Computer Science I	EN 12 English II CS 132 Computer Science II or* BE 371 Industrial Management EE 280 Electrical Laboratory (1)
THIRD	CD 211 Engineering Graphics-CAD I (4) MA 227 Calculus III	HI 30 Foundations of Modernization in West EE 212 Computer-Aided Circuit Analysis	EE 245 Digital Electronics MA 323 Advanced Mathematics

* Students planning to continue to a BS program should take CS 132.

All courses are 3 credit hours except as indicated in parentheses.

For Students Requiring Additional Preparation

The BEI School of Engineering recognizes that some entering students have limited background in the fundamentals necessary to undertake the engineering program. So an intensive course, RM 104, is offered to better prepare the student for the program that follows.

RM 104 is a College Algebra and Trigonometry course which meets for six hours per week. In addition to the mathematics preparation, familiarization with the personal computer is recommended.

1996-1997 ASSOCIATE IN ENGINEERING DEGREE

Electrical Engineering

Tabulation of Degree Requirements

PREPARATORY PROGRAM, IF NECESSARY:

RM 104 College Algebra & Trigonometry (6)

REQUIRED COURSES		CREDITS	PREREQUISITE
Mathematics: 15 Credits:			
MA 25	Calculus I	3	Precalculus, trig, or RM 104
MA 26	Calculus II	3	MA 25
MA 227	Calculus III	3	MA 26
MA 321	Differential Equations	3	MA 227
EE 224	Advanced Mathematics	3	MA 321
Computer Science: 6 Credits:			
CS 131	Computer Science I	3	MA 227
CS 132	Computer Science II or BE 371	3	CS 131
Chemistry and Materials: 9 Credits:			
BE 201	Chemistry I	3	Algebra or RM 104
BE 202	Chemistry II	3	BE 201
MF 206	Engineering Materials	3	BE 202
Engineering Graphics: 4 Credits:			
CD 211	Engineering Graphics CAD I	4	
Arts, Humanities and Social Sciences: 15 Credits:			
EC 11 or EC 12	Economics	3	EN 11
EN 11	English I	3	
EN 12	English II	3	EN 11
HI 30	Foundations of Modernization in the West	3	
	Industrial Management:		
MG 21	Organizational Behavior & Management	3	
OR			
PY 132	Industrial/Organization Psychology	3	EC 11 or EC 12

(Continued on next page)

Required Courses for Associate in Electrical Engineering

(continued from page 42)

REQUIRED COURSES		CREDITS	PREREQUISITE
Physics: 9 Credits:			
BE 341	Physics-Mechanics	3	MA 26
BE 342	Physics-Heat, Light, Sound	3	BE 341
BE 343	Physics-Electricity and Magnetism	3	MA 227, BE 342
Mechanical Engineering: 3 Credits:			
ME 201	Statics	3	MA 25, BE 341, CD 211
Electrical Engineering: 13 Credits:			
EE 210	Circuit Analysis	3	MA 227, BE 343
EE 212	Computer-Aided Circuit Analysis	3	EE 210, CS 131, MA 321
EE 230	Electron Devices and Applications	3	EE 210
EE 245	Digital Electronics	3	EE 230
EE 280	Electrical Laboratory	1	EE 230, EE 211 or EE 212

TOTAL Degree Credit Requirements: **71** Credits (does not include preparatory mathematics, RM 104)

NOTE: BE 371 or CS 132 may be elected.

Mechanical Engineering

Alan Dubrow
Chairman

As advances in both technology and education continue, the Mechanical Engineering courses and curriculum at BEI are enhanced to ensure that they support the needs of the Mechanical Engineering student and accelerate his/her progress in the discipline. As a result, the BEI Mechanical Engineering graduate is employable in a great diversity of jobs.

The ABET-accredited program of study at BEI leads to the Bachelor of Science Degree in Mechanical Engineering. However, the student can earn an Associate in Engineering Degree by completing the Mathematics, Science and Basic Engineering Science portion of the BS program.

The Mechanical Engineering Department at BEI provides the student with faculty who are not only experienced teachers, but also are current in the latest technology practiced in industry The students benefit from this well-rounded approach.

The Mechanical Engineering lecture courses include design projects and both computer and laboratory experience.

Faculty

Alan Dubrow, *Professor & Chairman*

Albert Madwed, *Director, Manufacturing Option*
Clement L. Anekwe, *Associate Professor*
Avi Ben-Porat, *Associate Professor*
Paul J. Botosani, *Professor*
Yew-Tsung Chen, *Associate Professor*
John Cooney, *Instructor*
Joseph DeFranco, *Assistant Professor*
Paul Dev, *Assistant Professor*
Shah Etemad, *Assistant Professor*
Leon Feigin, *Assistant Professor*
Jay Hoffman, *Assistant Professor*
David H. Hunter, *Associate Professor*
Peter Kochersperger, *Instructor*
Neil Krebs, *Professor*
Walter J. Kulpa, *Associate Professor*
Ray Lupkas, Instructor
Everett P. Loppacker, *Instructor*
Peter M. Moanfeldt, *Professor*
William Murray, *Instructor*
Marvin J. Parnes, *Associate Professor*
Jacob C. Rubin, *Associate Professor*
Richard G. Weber, *Professor*
Clifford A. Wojan, *Professor*

1996-1997 BACHELOR OF SCIENCE DEGREE

Mechanical Engineering

Recommended Program of Study

SEMESTER	FIRST YEAR	SECOND YEAR	THIRD YEAR
FIRST	BE 341 Physics-Mechanics EN 11 English I MA 25 Calculus I	ME 201 Statics MA 321 Differential Equations BE 343 Physics- Electricity and Magnetism	ME 203 Kinematics ME 205 Strength of Materials BE 201 Chemistry I
SECOND	BE 342 Physics- Heat, Light, Sound EN 12 English II MA 26 Calculus II	ME 202 Dynamics EE 224 Advanced Mathematics CS 131 Computer Science I	CS 132 Computer Science II BE 202 Chemistry II ME 306 Strength of Materials II
THIRD	CD 211 Engineering Graphics—CAD I (4) MA 227 Calculus III	Religious Studies Elective CD 212 Engineering Graphics—CAD II (4)	ME 274 Analytical Methods* ME 208 M.E. Laboratory I—Mechanical Systems (1)

SEMESTER	FOURTH YEAR	FIFTH YEAR	SIXTH YEAR
FIRST	ME 241 Thermodynamics I EC 11 or EC 12 Economics ME 309 Mechanical Vibrations	EE 230 Electron Devices & Applications ME 311 Machine Design ME 347 Fluid Mechanics	BE 374 Engineering Economy MF 390 Engineering Seminar† MF 206 Engineering Materials
SECOND	EE 210 Electrical Circuits I BE 371 Industrial Management ME 342 Thermodynamics II	ME 349 Heat Transfer ME 312 Advanced Machine Design ME 352 M.E. Laboratory II Energy Systems (1)	MF 207 Adv. Engineering Materials MF 390 Engineering Seminar† Elective (Major)
THIRD	Visual and Performing Arts Elective HI 30 Foundations of Modernization in West	Elective (Major) EE 290 Introduction to Electrical Systems (2) EE 291 Basic Electrical Lab. (1)	Elective (American History)

All courses are 3 credit hours except as indicated in parentheses.

† Engineering Seminar MF 390 is recommended for Semester 1 and 2 of the student's final year.

* Not required for Manufacturing Engineering; instead, HI 30, Foundations of Modernization in the West is required.

1996-1997 BACHELOR OF SCIENCE DEGREE

Mechanical Engineering

Tabulation of Degree Requirements

REQUIRED COURSES		CREDITS	PREREQUISITE
Mathematics: 18 Credits:			
MA 25	Calculus I	3	Precalculus, Trig, or RM 104
MA 26	Calculus II	3	MA 25
MA 227	Calculus III	3	MA 26
MA 321	Differential Equations	3	MA 227
MA 323	Advanced Mathematics	3	MA 321
ME 274	Analytical Methods for Mechanical Engineers	3	MA 323
Computer Science: 6 Credits:			
CS 131	Computer Science I	3	MA 227
CS 132	Computer Science II	3	MA 323
Chemistry and Materials: 12 Credits:			
BE 201	Chemistry I	3	Algebra or RM 104
BE 202	Chemistry II	3	BE 201
MF 206	Engineering Materials	3	BE 202
MF 207	Advanced Engineering Materials	3	MF 206
Engineering Graphics: 8 Credits:			
CD 211	Engineering Graphics CAD I	4	
CD 212	Engineering Graphics CAD II	4	CD 010 or 211
Arts, Humanities and Social Sciences: 27 Credits:			
EC 11 or EC 12	Economics	3	EN 11
EN 11	English I	3	
EN 12	English II	3	EN 11
HI 30	Foundations of Modernization in the West	3	
____	Religious Studies Elective	3	
____	American History Elective	3	
____	Visual and Performing Arts Elective	3	
	Industrial Management:		
BE 374	Engineering Economy	3	MA 26, EC 11 or EC 12
MG 21	Organizational Behavior & Management	3	
OR			
PY 132	Industrial/Organizational Psychology	3	EC 11 or EC 12

(Continued on next page)

Required Courses for Mechanical Engineering

(continued from page 46)

REQUIRED COURSES		CREDITS	PREREQUISITE
Physics: 9 Credits:			
BE 341	Physics-Mechanics	3	MA 26
BE 342	Physics-Heat, Light, Sound	3	BE 341
BE 343	Physics-Electricity and Magnetism	3	MA 227, BE 342
Mechanical Engineering: 44 Credits:			
ME 201	Statics	3	MA 25, BE 341, CD 211
ME 202	Dynamics	3	MA 26, ME 201
ME 203	Kinematics	3	CS 131, CD 212, ME 202
ME 205	Strength of Materials I	3	ME 201
ME 208	Mechanical Engineering Laboratory I-Mechanical Systems	1	BE 341, ME 203, ME 306
ME 241	Thermodynamics I	3	MA 321, BE 342
ME 306	Strength of Materials II	3	ME 205
ME 309	Mechanical Vibrations	3	ME 274, CS 132, ME 203
ME 311	Machine Design	3	ME 203, ME 306
ME 312	Advanced Machine Design	3	ME 309, ME 311
ME 342	Thermodynamics II	3	ME 241
ME 347	Fluid Mechanics	3	ME 201, ME 241
ME 349	Heat Transfer	3	CS 132, BE 342, ME 241, ME 347
ME 352	Mechanical Engineering Laboratory II-Energy Systems	1	ME 308, ME 342, ME 309, ME 347
____ [2]	Electives, Mechanical Enginerring	6	Refer to Course Descriptions
Electrical Engineering: 9 Credits:			
EE 210	Circuit Analysis I	3	MA 227, BE 343
EE 230	Electron Devices and Applications	3	EE 210
EE 290	Introduction to Electrical Systems	2	EE 230
EE 291	Basic Electric Laboratory	1	EE 230
Seminar: 6 Credits:			
MF 390	Engineering Design Seminar	6	ME 352, Final Year

TOTAL Degree Credit Requirements: **139** Credits

1996-1997 ASSOCIATE IN ENGINEERING DEGREE

Mechanical Engineering

Recommended Program of Study

SEMESTER	FIRST YEAR	SECOND YEAR	THIRD YEAR
FIRST	BE 341 Physics-Mechanics EN 11 English I MA 25 Calculus I	ME 201 Statics EC 11 or EC 12 Economics BE 201 Chemistry I	ME 203 Kinematics ME 306 Strength of Materials BE 343 Physic—Electricity and Magnetism
SECOND	BE 342 Physics- Heat, Light, Sound EN 12 English II MA 26 Calculus II	ME 202 Dynamics BE 202 Chemistry II CS 131 Computer Science I	EE 210 Circuit Analysis I BE 371 Industrial Management or 107 Differential Equations ME 306 Strength of Materials II
THIRD	CD 211 Engineering Graphics—CAD I (4) MA 227 Calculus III	HI 30 Foundations of Modernization in West CD 212 Engineering Graphics—CAD II (4)	MF 206 Engineering Materials ME 208 M.E. Laboratory I—Mechanical Systems (1)

All courses are 3 credit hours except as indicated in parentheses.

* For those continuing matriculation for the baccalaureate degree it is advised that Differential Equations be substituted for Industrial Management.

For Students Requiring Additional Preparation

The BEI School of Engineering recognizes that some entering students have limited background in the fundamentals necessary to undertake the engineering program. So, an intensive course, RM 104, is offered to better prepare the student for the program that follows.

RM 104 is a College Algebra and Trigonometry course which meets for six hours per week. In addition to the mathematics preparation, familiarization with the personal computer is recommended.

1996-1997 ASSOCIATE IN ENGINEERING DEGREE

Mechanical Engineering

Tabulation of Degree Requirements

PREPARATORY PROGRAM

RM 104 College Algebra & Trigonometry

REQUIRED COURSES		CREDITS	PREREQUISITES
Mathematics: 9 Credits:			
MA 25	Calculus I	3	Precalculus, Trig, or RM 104
MA 26	Calculus II	3	MA 25
MA 227	Calculus III	3	MA 26
Computer Science: 3 Credits:			
CS 131	Computer Science I	3	MA 227
Chemistry and Materials: 9 Credits:			
BE 201	Chemistry I	3	Algebra or RM 104
BE 202	Chemistry II	3	BE 201
MF 206	Engineering Materials	3	BE 202
Engineering Graphics: 8 Credits:			
CD 211	Engineering Graphics CAD I	4	
CD 212	Engineering Graphics CAD II	4	CD 010 or CD 211
Arts, Humanities and Social Sciences: 15 Credits:			
EC 11 or EC 12	Economics	3	EN 11
EN 11	English I	3	
EN 12	English II	3	EN 11
HI 30	Foundations of Modernization in the West	3	
	Industrial Management:		
MG 21	Organizational Behavior & Management	3	
OR			
PY 132	Industrial/Organizational Psychology*	3	EC 11 or EC 12

(Continued on next page)

Tabulation of Degree Requirements for Associate Mechanical Engineering

(Continued from page 49)

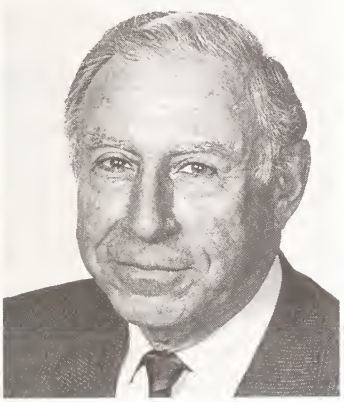
REQUIRED COURSES		CREDITS	PREREQUISITES
Physics: 9 Credits:			
BE 341	Physics-Mechanics	3	MA 26
BE 342	Physics-Heat, Light, Sound	3	BE 341
BE 343	Physics-Electricity and Magnetism	3	MA 227, BE 342
Mechanical Engineering: 16 Credits:			
ME 201	Statics	3	MA 25, BE 341, CD 211
ME 202	Dynamics	3	MA 25, ME 201
ME 203	Kinematics	3	MA 25, CD 212, ME 202
ME 205	Strength of Materials I	3	ME 201
ME 208	Mechanical Engineering Lab I-Mechanical Systems	1	BE 341, ME 203, ME 306
ME 306	Strength of Materials II	3	ME 205
Electrical Engineering: 3 Credits:			
EE 210	Circuit Analysis I	3	MA 26, BE 343

TOTAL Degree Credit Requirements **72** Credits (does not include-preparatory program)

* For those who intend to matriculate beyond the Associate Degree, Differential Equations MA 321 should be substituted for Industrial Management PY 132. The MA 321 course will therefore be counted as part of the Associate Degree.

CONCENTRATION IN

Manufacturing Engineering, Industrial Management, and Materials



Albert Madwed
Director

Faculty

Albert Madwed, *Director*

Paul P. Botosani, *Professor*
Philip D. Cracco. *Instructor*
John B. Davis, *Instructor*
James R. Savage, *Instructor*
Howard W. Shelnitz, *Instructor*
Stephen H. Silder, *Associate Professor*
Richard G. Weber, *Professor*
Robert Wojna, *Senior Instructor*

The Concentration in Manufacturing Engineering was organized in 1987 with five courses to provide an option to the Mechanical Engineering Program. These courses MF 351, 352, 353, 354, 355 plus the courses in Industrial Management PY 132 or MG 21, BE 374, and the MF 390 seminar course offer an excellent program for the Manufacturing Engineering option. Many engineering schools have started manufacturing engineering programs since 1985. The BEI Manufacturing and Robotics Laboratory has modern equipment including robots, computers and modern programmable controllers. The combined department is assisted by an able staff of industrial professionals who have had many years of experience teaching at BEI.

1996-1997 BACHELOR OF SCIENCE DEGREE, CONCENTRATION IN

Manufacturing Engineering

Recommended Program of Study

(Option in Mechanical Engineering) First, Second and Third Year, Same as Mechanical Engineering

SEMESTER	FOURTH YEAR	FIFTH YEAR	SIXTHYEAR
FIRST	ME 241 Thermodynamics I EC 11 or EC 12 Economics ME 309 Mechanical Vibrations	EE 230 Electron Devices & Applications ME 311 Machine Design ME 347 Fluid Mechanics	BE 374 Engineering Economy MF 390 Engineering Seminar† MF 206 Engineering Materials
SECOND	EE 210 Electrical Circuits I BE 371 Industrial Management ME 342 Thermodynamics II	ME 349 Heat Transfer MF 352 Manufacturing Systems II ME 352 M.E. Laboratory II Energy Systems (1)	MF 354 Product and Process Design and Manufacturing MF 390 Engineering Seminar† MF 355 Product Planning, Control and Forecasting
THIRD	Elective (American History) MF 351 Manufacturing Systems I	MF 353 Manufacturing Processes and Materials EE 290 Introduction to Electrical Systems (2) EE 291 Basic Electrical Laboratory (1)	Visual and Performing Arts Elective

All courses are 3 credit hours except as indicated in parentheses.

† Engineering Seminar MF 390 is taken during Semester 1 and 2 of the sixth year.

BACHELOR OF SCIENCE DEGREE, CONCENTRATION IN

Manufacturing Engineering

Tabulation of Degree Requirements

REQUIRED COURSES		CREDITS	PREREQUISITE
Mathematics: 15 Credits:			
MA 25	Calculus I	3	Precalculus, Trig, or RM 104
MA 26	Calculus II	3	MA 25
MA 227	Calculus III	3	MA 26
MA 321	Differential Equations	3	MA 227
MA 323	Advanced Mathematics	3	MA 321
Computer Science: 6 Credits:			
CS 131	Computer Science I	3	MA 227
CS 132	Computer Science II	3	CS 131
Chemistry and Materials: 9 Credits:			
BE 201	Chemistry I	3	Algebra or RM 104
BE 202	Chemistry II	3	BE 201
MF 206	Engineering Materials	3	BE 202
Engineering Graphics: 8 Credits:			
CD 211	Engineering Graphics CAD I	4	
CD 212	Engineering Graphics CAD II	4	CD 010 or CD 211
Arts, Humanities and Social Sciences: 27 Credits:			
EC 11 or EC 12	Economics	3	EN 11
EN 11	English I	3	
EN 12	English II	3	EN 11
HI 30	Foundations of Modernization in the West	3	
____	Religious Studies Elective	3	
____	History Elective	3	
____	Visual and Performing Arts Elective	3	
	Industrial Management:		
ME 374	Engineering Economy	3	MA 26, EC 11 or EC 12
MG 21	Organizational Behavior & Management	3	
OR			
PY 132	Industrial Organizational Psychology	3	MA 26, EC 11 or EC 12

(Continued on next page)

Required Courses for Manufacturing Engineering

(Continued from page 53)

REQUIRED COURSES		CREDITS	PREREQUISITE
Physics: 9 Credits:			
BE 341	Physics-Mechanics	3	MA 26
BE 342	Physics-Heat, Light, Sound	3	BE 341
BE 343	Physics-Electricity and Magnetism	3	MA 227, BE 342
Mechanical Engineering: 35 Credits:			
ME 201	Statics	3	MA 25, BE 341, CD 211
ME 202	Dynamics	3	MA 26, ME 201
ME 203	Kinematics	3	MA 026, CD 212, ME 202
ME 205	Strength of Materials I	3	CS 132, ME 201
ME 208	Mechanical Engineering Laboratory I-Mechanical Systems	1	BE 341, ME 203, ME 306
ME 241	Thermodynamics I	3	MA 321, BE 342
ME 306	Strength of Materials II	3	ME 205
ME 309	Mechanical Vibrations	3	MA 323, CS 132, ME 203
ME 311	Machine Design	3	ME 203, ME 306
ME 342	Thermodynamics II	3	ME 241
ME 347	Fluid Mechanics	3	ME 201, ME 241
ME 349	Heat Transfer	3	CS 132, BE 342, ME 241, ME 347
ME 352	Mechanical Engineering Laboratory II-Energy Systems	1	ME 208, ME 342, ME 309, ME 347
Electrical Engineering: 9 Credits:			
EE 210	Circuit Analysis	3	MA 227, BE 343
EE 230	Electron Devices and Applications	3	EE 210
EE 290	Introduction to Electrical Systems	2	EE 230
EE 291	Basic Electric Laboratory	1	EE 230
Manufacturing Engineering: 15 Credits:			
MF 351	Manufacturing Systems I	3	MA 321, MA 228, BE 341
MF 352	Manufacturing Systems II	3	MF 351
MF 353	Manufacturing Processes and Materials	3	MF 352
MF 354	Product and Process Design for Manufacturing	3	MF 353
MF 355	Product Planning, Control and Forecasting	3	MF 354
Seminar: 6 Credits:			
MF 390	Engineering Design Seminar	6	ME 352, Final Year

TOTAL Degree Credit Requirements: **139** Credits

Engineering Graphics/CAD Component

Felice P. Rizzo
Director

The engineering graphics/CAD component of the curriculum is spread across all engineering disciplines. The courses in this component combine Manual Drafting Practices, Descriptive Geometry and the fundamentals of Computer-Aided Drafting usage.

The student learns both basic drafting practices and CAD. Classes are kept small to allow for individual attention and the classes are taught by engineering professionals who have extensive experience in the field of Engineering Design and Manufacturing.

A well-equipped CAD lab is available for individual instruction at all levels up to and including 3D.

Client-Server Technology (Distributed Systems)

John Porter
Director

An option in Distributive Systems is offered in the context of the Information Systems Engineering degree program. The courses in this option are intended either to permit experienced mainframe software programmers to enhance their skills or to serve as electives for senior-level students (see page 46). For the students interested in earning a Client-Server Certificate, awarded in conjunction with the School of Continuing Education, the required program of study is shown on page 36.

Engineering and Science Laboratories

Testing an Electrical Engineering design

The BEI Engineering and Science Laboratories have shown remarkable growth in the past few years. The laboratories provide strong support to Electrical, Mechanical, Manufacturing, and Computer & Information Systems Engineering as well as Physics, Chemistry and Materials programs.

BEI has nine laboratories: Electrical, Mechanical, Robotics & Manufacturing, Information Systems Engineering, Computer Science, CAD, Engineering Resource and Development, Physics and Chemistry. The laboratories include modern equipment to greatly enhance the student's laboratory experience. Every year 250 to 300 students participate in various activities in the BEI labs.

Faculty and Staff

Richard G. Weber, *Associate Dean and Professor*
Paul P. Botosani, *Supervisor and Professor*
Joseph Hajla, *Lab Associate, Physics*
Robert Wojna, *Laboratory Engineer-Special Projects*
Rudy Berndlmaier, *Lab Associate, Chemistry*
Edward J. Corella, *Senior Lab Technician*
Vincent Venitelli, *Lab Technician*

Recent additions to the BEI labs include a refrigeration demonstration unit having a computer interface for data acquisition, and a modern mechanical properties testing system (INSTRON) obtained as a result of a National Science Foundation grant. Several personal computers, and a computer-controlled instrumentation system utilizing an IEEE 488 bus system are provided for data acquisition and analysis. BEI is committed to a long-term plan for the procurement of new and modern lab equipment.

BEI Laboratories provide the student with strong practical knowledge in instrumentation and engineering processes, and assist in preparing the student for a successful engineering career.

BEI Professional Development Programs

The Professional Development Division

Professional Development continues as a distinct program in the BEI School of Engineering.

Program Objectives

Professional Development programs are designed to provide the participant with state-of-the-art developments in Engineering, Information Science and Computer Science technology. Courses, seminars and symposia are generally offered as part of the program. Academic recognition for completion of a program is acknowledged by a certificate of completion awarded in conjunction with the School of Continuing Education and the award of CEU units.

Generally, classes meet one evening a week, after a Fairfield University or a weighted industrial location.

The Continuing Education Unit (CEU)

The CEU (Continuing Educational Unit) concept provides individuals with a nationally established system of recognition for their efforts to update or broaden their knowledge or skill. One CEU is defined as 10 contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction and qualified instruction.

Current and Recent Course Offerings

One of the most popular courses offered is the Fundamentals of Engineering Review course. The objective of the review course is to prepare participants to take the Connecticut State examination to licensure as a professional engineer.

Other courses are:

- Computer-Aided Design and Drafting
- Introduction to Programmable Controllers
- Microprocessor-based Process
- Robotics and the Automated Factory
- Geometric Dimensioning
- Tolerance Analysis
- Fiber Optics
- Finite Element Analysis
- Strength of Composite Materials
- Environmental Compliance Regulations
- Machine Design
- Quality Control Technology
- Statistical Process Control

On-Site Courses

On-Site courses are designed to provide training programs for companies wishing to expand the skills of its employees. BEI develops the course content and, in cooperation with the employer, provides the planning and staffing to run the course.

Typical on-site courses that have been offered are:

- Computer-Aided Design/Drafting
- Strength of Composite Materials and Structures
- Geometric Tolerancing
- Finite Element Analysis
- Statistical Process Control
- Fundamentals of CNC technology

BEI will meet the need

The School's Professional Development Staff welcomes suggestions for courses and/or seminars that may serve the educational needs of the community. Call Associate Dean Richard Weber, 254-4147.

Professional Development Adjunct Faculty

R. Berndlmaier
P. Botosani
D. Comiskey
F. DePonte
L. Feigin
H. Hoffman
J. Hoffman
N. Krebs
W. Kulpa
R. Langanke
J. Laverriere
M. Parnes
R. Pellegrini
C. Pizzo
M Ramsey
R.W. Raulerson
J. C. Rubin
R. Siddall

Engineering Course Descriptions

Description of Mathematics, Physics, Chemistry and Liberal Arts courses required for the Engineering Degree begin on page 71.

Computer & Information Systems Engineering

Engineering Graphics and CAD

CD 010 - Computer Aided Drafting (CAD) 30-1
Overview of CAD systems basic functions using IBM compatible computers. Course covers functional hierarchy, functional keys, menus, prompts, filing a model, calling a model. Elements include points, lines, circles, windowing, relimiting, cornering, offsetting, line types, arrows, notes, and dimensioning. Application of CAD to engineering drawings. The course is designed for those who have credit for manual drafting and are advancing to CD 212. Prerequisite: 301 or equivalent.

CD 111 - Technical Graphics-CAD I 45-3
Basic course in engineering technology, graphics coordinated and taught simultaneously with CAD. The course will include board work, technical sketching.

CD 112 - Technical Graphics-CAD II 45-3
Continuation of CD 111, technical graphics with introduction to descriptive geometry and advanced CAD. Prerequisite: CD 111 or CD 010 with Drafting Equivalent.

CD 115 - Computer-Aided Drafting (AutoCAD) 45-3
Overview of the AutoCAD system of Computer Aided Drafting using IBM compatible PCs. The course will cover the basic PC commands needed to get started, the creation and manipulation of geometry in the 2-D and 3-D environment and the basic application of CAD to engineering drawings. Prerequisite: Basic Drafting knowledge.

CD 211 - Engineering Graphics - CAD I 60-4
Basic course in engineering graphics coordinated and taught simultaneously with CAD application. Board work covers geometric constructions, theory of orthographic projection, visualization, dimensioning, tolerancing, sections, screw threads and fasteners, assembly drawing, geometric tolerancing. Technical sketching is stressed. For description of CAD part on see CD 010.

CD 212 - Engineering Graphics - CAD II 60-4
Introduction to descriptive geometry with advanced computer-aided drafting/design. Course builds on concepts and functions of CD 211 and introduces functions for GROUP operations, DETAIL for geometry transfer and standard libraries, the AUX VIEW for orthographic view projection. Utilization of ANALYSIS for complex section properties, concepts of NO-SHOW, and a final design project complete the course. Prerequisite: CD 211 or CD 010 and drafting equivalent.

CD 213 - Graphic Science and Design (3-D CAD) (Elective) 30-2
Introduction to 3-D CAD using CADKEY and IBM compatible PCs. 3-D design topics including Display Manipulation, Level Management, View Coordinates and World Coordinates, Construction Modes, Depth, Construction Planes. Also included are wire frame model construction, introduction to solids, and process and design for the real world. Prerequisite: CD 212 or equivalent.

Computer Science

CS 131 - Computer Science I **45-3**
Development of design, coding, debugging, and documentation using structured programming for engineering problem solving. Computer problem solving heuristics, algorithm development using top-down design and good programming style. Laboratory work in solution of engineering problems using the PASCAL language. Offered each semester. Prerequisites: MA 227.

CS 132 - Computer Science II **45-3**
Disciplined development in software design through the use of the scientific programming language FORTRAN. Principles and applications of FORTRAN for solution of numerical, mathematical, and engineering problems. Comprehensive student exercises. Offered each semester. Prerequisite: CS 131 or equivalent.

CS 133 - Software Design with C **45-3**
Application of data structures and algorithms using the C language Emphasis is placed on the design, implementation, and evaluation of modular programs employing algorithms executed in C. Prerequisite: CS 131 or CS 132.

CS 322 - Computer Architecture I **45-3**
Instruction sets and formats, addressing techniques, memory organization and their effect on machine organization. Utilization of architecture fundamentals at the microprogramming machine language and operating- system levels. Processor and communication organization and mainframe environments. Prerequisite: EE 345.

CS 324 - Computer Architecture II **45-3**
Memory management, application of computer and communications systems measurement techniques. Simulation and Analytical techniques. Evaluation of computer capacity. Developing system specifications. Prerequisite: CS 322.

CS 331 - Operating Systems **45-3**
Systematic top-down approach to operating systems concepts and features for applications programming. Compilers, job control or command languages, access methods, linkage editors and loaders. Hardware/ software interface and impact of machine architecture on its operating systems' design. Prerequisite: CS 322.

Information Systems

IC 131 - Introduction to Programming **45-3**
Development of design, coding, debugging, and documentation using structured programming for engineering problem solving. Computer problem solving heuristics, algorithm development using top-down design and good programming style. Laboratory work in solution of engineering problems using the VISUAL BASIC language. Prerequisite: MA 227.

IC 209 - Probability and Statistics **45-3**
Probability, random variables, discrete and continuous probability distributions, estimation, hypothesis testing, linear regression and correlations. Prerequisite: MA 26 or equivalent.

IC 222 - Simulation Techniques **45-3**
The use of simulation methods for the analysis and design of various types of systems employing computer techniques. General purpose languages for simulation and use of discrete and continuous simulation languages for probabilistic and analog systems. Prerequisites: MA 321, IC 209 & CS 132.

IC 227 - Object Oriented Programming Using C++ **45-3**
Introduction to object-oriented methodology and abstract data types. Discussions in polymorphism and data encapsulation. Examples of using object oriented programs in situations, as well as large system integration by object-oriented methodology. Prerequisite: CS 133.

IC 250 - Introduction to Information Systems Engineering **45-3**
Course includes components of information systems; inputs, outputs, storage and processing; data and information signals; conversion of signals from one physical form to another; modems; magnetic, electrical and optical storage; transmission media; transmission coding: networking. Prerequisite: CS 133.

IC 340 - Introduction to Client Server Technology **45-3**
Client-Server technology based on personal computers and work stations represents a radically different environment for the professional software developer. This course is an introduction to the new paradigm, focusing on the DOS and Windows operating system,

the concepts of Graphical User Interfaces and event-driven programming, and the use of tables and queries. Microsoft's ACCESS is used as the basis for classroom demonstrations and exercises. Intended as an introductory course for professional programmers whose training and experience is on mainframe and mid-range computers.

IC 341 - Object-Oriented Design/Relational Database Design 45-3
Discusses concepts of object-oriented design and relational database design, the foundations of client-server software development. Covers file design and data normalization, referential integrity, database triggers, and event-driven program design. CASE tools will be used to design a useful application. Intended for technical managers, systems designers of enterprise level client-server applications, and programmers of client-server applications. Laboratory included. Prerequisite: IC 355.

IC 342 - Implementing the Database Server 45-3
The steps required to build and maintain the data infrastructure for client-server applications, including the physical design and implementation of the database, the use of the database to meet the informational needs of a client-server system, and the installation, operation, and maintenance of RDBMS software. Oracle and Microsoft's SQL Server will be used as the basis for classroom demonstrations and exercises. Specific topics include SQL (Structured Query Language), SQL utilities, alternative front-end development tools, the use of a RDBMS, hardware and software tuning for maximum performance, backup and recovery of data, security, and control systems. Students will perform a number of hands-on exercises using a SQL Server running on Windows NT. Laboratory included. Prerequisite: IC 341.

IC 344 - Visual Programming 45-3
An in-depth treatment of visual programming development in a client-server environment. At the completion of this course, students will understand the event-driven programming model, and will be able to build forms, write procedural code, and put forms and codes together to build custom applications. In addition the student will learn how to access data via data controls, and how to extend the environment using third-party tools. POWERBUILDER or Microsoft's VISUAL BASIC or C++ will be used as the application development tools to illustrate current techniques for developing applications. Intended for designers and programmers who are developing systems in the Windows environment. Laboratory included. Prerequisite: IC 342.

IC 345 - Network Concepts 45-3
Network components, and network architecture are discussed. The components that make up a network including cabling issues, wiring hubs, file servers, bridges, routers, network interface cards (NICS), and network software and hardware configurations will be covered. Practical hands-on experience is provided by configuring the protocol stacks and connecting a PC to a network. Network architectural concepts are also discussed. This includes the seven-layer OSI model, the foundation of today's communication protocols. This basic model will be related to popular implementations including Novell's ODI stack, IBM's and Microsoft's NDIS, and the industry standard TCP/IP. Sources of network overhead will be identified, and WAN architecture, with its implications for the developer, network security, and application security, will also be covered. Intended for application developers who need an understanding of the Client-Server environment. Laboratory included. Prerequisite: IC 341.

IC 355 - Database Management Systems 45-3
The course will cover data formats, organizations, representations and structures; design and analysis of searching, sorting and other algorithms; data management systems; types of database systems; logical data models and database usage; and relational databases. Prerequisite: CS 133.

IC 360 - Communications Networks 45-3
This course introduces computer communications networks, including network architecture and protocols, elements of networks, data link switching, routing and end to end protocols, local area networks, interfacing digital systems, buses, parallel and serial interfaces and standards. Pricing exercises evaluating alternative service costs, integrated services digital network (ISDN), and systems network architecture (SNA). Prerequisite: IC 350, EE 345.

IC 385 - Systems Engineering 45-3
Engineering application of system analysis to practical problems, optimal solutions, linear programming, simulation and statistics. Prerequisite: IC 360, IC 380.

IC 390 - Computer Applications Laboratory 30-1
A laboratory course stressing the fundamentals of information systems design, management and maintenance. An engineering ethics component highlights its importance in 'real life' situations. Experiments focus on practical engineering applications that include topics such as the effects of noise on system operation, shielding, bus performance, local area networks, multimedia, computer performance and data base exercises. Prerequisite: IC 360.

IC 392 - Senior Information Systems Engineering (ISE) Project 45-3
A capstone design course emphasizing student creativity and organizational abilities. The student works with a faculty mentor to select a project that is representative of a realistic information systems engineering development task. The student prepares design goals, executes a literature search, prepares an in-depth analysis, and develops the experiment. A final report and presentation demonstrates the student's accomplishments. The student meets with the mentor on a regular basis to discuss the project's status and to review alternative solutions to problems. This course may be taken as an independent study.

Electrical Engineering

EE 210 - Fundamentals of Electric Circuits 45-3
An introduction to the analysis of electric circuits including the definition of units, types of circuits and the basic laws is presented. Mesh and Nodal analysis based on Kirchoff's Laws are stressed with solution by algebraic and determinant techniques. Thevenin and Norton theorems are developed. Sinusoidal analysis including Phasor techniques are introduced. DC and AC power and its measurement are presented. Superposition, reciprocity and maximum power transfer theorems are developed and applied. The use of the computer as an aid in circuit analysis is introduced. Prerequisites: MA 227, BE 343.

EE 212 - Computer Aided Circuit Analysis 30-2
Time and frequency domain analyses of passive and active circuits are examined using computer-aided circuit analysis tools. MICROCAP IV is the specific tool used to illustrate computer circuit analysis techniques. The Fourier expansion of complex waveforms are developed with MATHCAD used as the vehicle to perform the coefficient calculation. Prerequisites: MA 321, CS 131, EE 210.

EE 220 - Linear Circuit Analysis 45-3
The transient and steady state response of electrical circuits are studied using both classical and transform techniques. Circuits with inductance, capacitance, and resistive elements are studied for natural and forced response. Pole and zero concepts are introduced. One and two port network concepts are employed. Frequency response and pole zero plots are applied to circuits and systems. Fourier integral and transform techniques are studied. The LaPlace transform and its inverse are developed and applied to circuit problems. The computer is employed as a tool in the calculations for homework problems and design assignments MICROCAP IV is used to confirm the analyses. Prerequisites: MA 323, EE 211 or EE 212.

EE 224 - Advanced Engineering Mathematics 45-3
Introduction to applied mathematical techniques required for the solution of advanced engineering programs. Topics include Fourier integrals and series expansion: solution of linear differential transforms. Systems of linear equations by series and LaPlace transforms. Complex numbers review of matrix solutions. Eigenvalue problems and iterative processes. Application of advanced mathematics in engineering problems. Prerequisite: MA 321.

EE 230 - Electron Devices and Applications 45-3
The physical operation of semiconductor junctions are studied and applied. The operation of both ideal and actual diodes are developed and applied to circuits for basic rectification and AC to DC power conversion. Bipolar Junction Transistor (BJT) and Field Effect Transistor (FET) devices are investigated and their operation applied to amplifier circuits. Biasing techniques are analyzed with respect to power efficiency and circuit stability. Device models are created and the concept of "h" parameters derived to assist in performance analysis. Frequency response limitations and coupling techniques for multistage amplifiers are developed. Techniques for laboratory investigation of performance are presented. Prerequisite: EE 210.

EE 245 - Digital Electronics 45-3
This course covers both the theoretical and practical aspects of digital logic design, binary and hexadecimal number systems are presented. Logic gate symbols, Boolean expressions and truth tables are developed. Boolean algebra theorems are developed and simplified. Karnaugh mapping theory is developed and applied in a design project. TTL combinational circuits

are studied followed by sequential logic systems. Programmable logic devices are introduced including programming techniques and basic state machine architecture. Design and laboratory projects apply the theory to practical problems. Prerequisite: EE 230.

EE 280 - Electrical Laboratory 45-1
A laboratory course stressing the fundamentals of circuit theory and electronics. Experiments include verification of network analysis techniques including mesh and nodal equations, theorems (Thevenin, Norton, superposition, etc.) maximum power transfer and the performance of basic reactive circuits. Diode and transistor characteristics are prepared and applied in basic electronic circuits. Single and polyphase power measurements are made. Students develop measurement techniques to achieve the experimental objectives. An ethics component explores the meaning of professionalism and engineer's societal responsibilities. Prerequisites: EE 211 or EE 212, EE 230.

EE 290 - Introduction to Electrical Systems 30-2
A course designed primarily for the nonelectrical engineering student to introduce the concepts of AC systems, transformers, digital techniques and mechanical analogs. Prerequisite: EE 210, EE 230.

EE 291 - Basic Electrical Laboratory 30-1
A laboratory course designed for the nonelectrical engineer to acquaint the student with the fundamental principles of circuits, electronics (analog and digital), and electrical systems. Co-requisite EE 290.

EE 301 - Transform Analysis Techniques 45-3
The concepts of linear time invariance and convolution are presented. LaPlace transform techniques are further studied and applied to circuits. Signal sampling concepts are investigated. The Z Transform is developed and applied to a variety of electrical systems. Design assignments are used to augment class problems and apply the concepts to engineering problems. The computer is used to assist in the calculations. The laboratory is used to demonstrate the concepts and confirm student designs. Prerequisite: EE 220.

EE 302 - Feedback Systems Engineering 45-3
A course in basic feedback theory including system development and analysis. Stability criteria, sampling techniques and approaches to achieve stable closed loop performance are presented. The design of systems to meet given requirements are included to apply the concepts. The computer is employed in the analysis and the laboratory is used to demonstrate concepts and confirm design performance. Prerequisite: EE 301.

EE 304 - Digital Control Systems (Elective) 45-3
The design and analysis of digital feedback systems are developed. Signal conversion and processing techniques, Z transform analysis, transfer function block diagrams and state variable techniques are developed. Time and frequency domain analyses are employed to determine system stability and achieve optimum control. Design projects with computer simulation apply the techniques to engineering situations. Prerequisite: EE 302, EE 345.

EE 320 - Introductory Vector Analysis 30-2
Scalar and vector definition, vector addition and multiplication divergence and curl, directional derivatives. Green's, Stoke's, and Gauss's theorem as applied to engineering problems. Prerequisite: MA 321.

EE 321 - Fundamentals of Electromagnetic Fields 45-3
Electric and magnetic fields are investigated through the use of vector calculus. Techniques for the computation of fields and capacity for given charge distributions are outlined. The significance of Poisson's and LaPlace equations are studied with methods of solution. Components specifications and implementation alternatives are considered and design concepts to achieve the objective are developed. Prerequisites: EE 301 & EE 320.

EE 325 - Microwave Systems Engineering (Elective) 45-3
The fundamentals of Microwave theory are examined using Maxwell's equations. Plane waves in lossless and dissipative media are studied as well as propagation in ideal and lossy transmission lines. Wave guide theory is developed. Microwave resonators, filters, amplifiers and oscillators (TWT, klystron, magnetron) are investigated. Radiation via antenna systems is presented. Design problems to meet specific objectives apply the concepts in an engineering development experience. Prerequisite: EE 321.

EE 330 - Electronic Amplifiers & Applications 45-3
A detailed analytic study of electronic amplifier performance and practical applications. Various BJT and FET amplifier configurations are studied with respect to frequency response (Bode Plots) and the gain/bandwidth concept is developed. The impact of noise on amplifier performance is presented. Frequency compensation techniques are outlined. Integrated amplifier circuits (operational amps) are investigated and applied to a variety of applications. Feedback techniques are investigated. Design assignments are employed to apply the concepts to practical engineering problems. Prerequisites: EE 211 or EE 212, EE 230.

EE 332 - Electronic Engineering 45-3
The application of electron devices to a variety of applications are presented and analysis techniques developed for student to apply in several design assignments. Among the circuits studied are oscillators and waveform generators, passive and active filter circuits, modulators and demodulators, comparator and trigger circuits, D to A and A to D converters, sample and hold circuits, phase lock circuits, power supply circuits and signal conditioning circuits. Various computer analysis programs are employed for the analyses and the laboratory is used for the confirmation of designs. Prerequisites: EE 245 & EE 330.

EE 345 - Digital Computing Systems 45-3
Fundamental operation of synchronous and asynchronous digital computing systems are studied and the techniques for implementing these designs are developed. Fundamentals of computer architecture and programming in assembly and machine language are presented. Problem statements and specifications are generated and implemented by programs on a representative microcomputer. Prerequisites: EE 245.

EE 346 - Microprocessor Hardware Control Systems (Elective) 45-3
Techniques for hardware control through firmware and software are studied. Control systems are created using a variety of computing systems. Assembly code design and microprocessor system development on the personal computer are emphasized. System specification, alternate technique evaluation and analysis of performance are illustrated in design problems. Software life cycle costs are explained. Prerequisite: EE 345.

EE 350 - Communications Systems 45-3
An introduction to analog and digital communications systems analysis including the mathematical treatment of the effects of various noise sources on signal masking. Modulation and demodulation techniques (AM, FM, PM & pulse code) are developed. Design problems are employed to permit the student to apply the concepts to meet system objectives. Prerequisite: EE 301.

EE 352 - Digital Communications Systems (Elective) 45-3
This course is designed to explore current digital communication features. Fundamentals of sampling principles and channel coding are utilized to develop standard digital modulation techniques (ASK, FSK, PSK, PCM, and delta modulation). Multiplexing and multiple access networks are also analyzed. Techniques are applied in design assignments with students designing to meet specified performance. Prerequisite: EE 301, EE 245, EE 350.

EE 354 - Electro-Optical Data Communications Systems (Elective) 45-3
The theory and basic elements of fiber optic communications systems are studied. Fundamentals of transmission in optical fibers are developed. Source component operation including light emitting diodes and solid state lasers are studied. Coupling element and detector devices are investigated. Modulation and demodulation techniques are analyzed and overall loop performance determined relative to bandwidth and signal to noise ratio. Design problems enhance student understanding. Prerequisites: EE 301, EE 332, EE 350.

EE 356 - Applied Digital Signal Processing 45-3
This course serves as a bridge to understanding the relationship between the Analog world and its Discrete-Time representation in digital computers. Digital Signal processing concepts emphasize the relationship between continuous-time and discrete-time systems in time and frequency domains. Practical digital filter design and implementation structures are discussed and stochastic models and the random variable approach in digital signal processing is introduced. Real world applications of Digital Signal Processing are analyzed. Prerequisite: EE 301.

EE 360 - Electrical Machine Analysis (Elective) 45-3
Basic equivalent circuit models are developed for various electrical machines including transformers, DC generators & motors, and induction and synchronous AC motors. The models are applied to determine transient and steady state machine performance. Design assignments to apply the concepts are reinforced by laboratory evaluation. Prerequisite: EE 301.

EE 365 - Power Systems Analysis (Elective) 45-3
An introduction to the analysis of high voltage power systems and components including the study of AC and DC transmission lines, power transformers and synchronous generators. Methods of analysis include system models, network calculations, symmetrical components, non-symmetrical faults and power system stability. Prerequisite: EE 301.

EE 370 - Instrumentation Systems Engineering (Elective) 45-3
A course outlining the development of instrumentation systems including the basics of transducer technology, signal processing, analog to digital and digital to analog signal conversion and data transmission. Noise suppression and modulation techniques are developed. Instrument control and data gathering via the IEEE 488 bus are developed and applied to a system design for evaluation in the laboratory. Prerequisites: CS 131, EE 332, EE 380.

EE 376 - Electrical System Design Analysis 45-3
The impact of component fabrication tolerances and temperature effects on system performance are studied with particular emphasis on the way these factors must be considered in circuit and system design. Techniques for analysis (including statistical methods) are presented and applied to specific examples. Student designs are employed to apply the approaches to typical engineering design problems. The concepts of reliability engineering and fault tolerant designs are introduced. The computer is used to assist in the evaluations. Prerequisite: EE 230, EE 211 or EE 212.

EE 380 - Intermediate Electrical Laboratory 30-1
A laboratory course designed to reinforce the principles of electrical systems and circuits including feedback, electronic systems, and transform analysis techniques. Students are required to develop the details of the experiments and employ the computer for data processing and report preparation. Conclusions and cause for variations between theory and experiment must be presented. The engineering ethics module examines case studies to further understand the engineer's societal responsibility. Prerequisites: EE 280, EE 302 & EE 332.

EE 382 - Advanced Electrical Project 30-2
A design course placing major emphasis on individual student creativity. The student (working with a faculty mentor) develops the project objectives and performance specifications. At review meetings the student presents progress on the project including analytic and experimental results to date. A final report and presentation demonstrates the accomplishments and significant conclusions. Faculty involvement seeks to create a realistic engineering development environment. Note: The student may take this course as "independent study" once the prerequisites have been met. Prerequisite: Departmental approval of project proposal following completion of nonelective EE courses (including EE 380) & at least one major elective.

EE 391 - Random Signals and Noise 45-3
Axiomatic approach to probability theory with emphasis on applications to engineering problems. Modeling and spectral representation of discrete-time stochastic processes such as speech signals. Estimation of model parameters via the Mean Square Method, Linear Prediction and Filtering of random processes. Prerequisite: EE 301 or equivalent.

Mechanical Engineering

ME 201 - Statics **45-3**
Introduction to the fundamental concepts of rigid body mechanics, using vector representation of forces, free-body diagrams and conditions of equilibrium in two-and-three dimensions. Covers force analysis of trusses, frames and simple machines with frictional forces included. Analysis by computer is emphasized along with the development of problem solving techniques. Prerequisites: MA 25, BE 341 & CD 211.

ME 202 - Dynamics **45-3**
Analysis of forces utilizing Newton's second and third laws of motion: theory of kinetics of particles and linkages under rectilinear and curvilinear motion: mathematical and graphical methods; review of work, energy and power; momentum and impact. Prerequisites: MA 26 & ME 201.

ME 203 - Kinematics **45-3**
The presentation of kinematic principles applied to basic machine mechanisms: graphic and analytic analysis of velocities and accelerations in transmission of motion by direct contact, linkage, gears, sliding block mechanisms, cams and belts. Fundamentals of analyzing and developing engineering designs. Prerequisites: CS 131, CD 212 & ME 202.

ME 205 - Strength of Materials I **45-3**
Concept of stress; pin loaded joints; factors of safety; basic stress-relations in two dimensions; thermal strains; indeterminate problems; stress concentration factors; torsion; shatting; coupling and related applications; theory of bending, including normal and shear stresses; eccentric loading; transverse shear stresses; principle stresses and Mohr's circle; theories of failure; thin walled pressure vessels. Prerequisites: ME 201.

ME 208 - Mechanical Engineering Laboratory - Mechanical Systems **30-1**
An integrated educational approach to engineering experimentation which incorporates the concepts of statics, dynamics, kinematics and strength of materials. Includes the fundamentals of electronic instrumentation for measurement of engineering properties and data acquisition based on statistical error analyses. Data documentation and report writing are emphasized for product design testing and validation. Ethical approaches to data reporting discussed with case studies. Prerequisites: BE 341, ME 203 and ME 306.

ME 241 - Thermodynamics I **45-3**
Classical macroscopic thermodynamics with engineering applications. Conservation of energy for open and closed systems. Equations of state and pure substances. First and second law of thermodynamics, including internal energy, enthalpy, entropy. Tables of thermodynamic properties. Ideal gases Conservation of mass. Elements of cycle analysis. Prerequisites: MA 321 & BE 342.

ME 245 - Thermal Engineering **45-3**
A course designed for the non-mechanical engineering student. Thermodynamic Fundamentals. Conservation of Energy. Equations of State. First Law. Second Law and Applications to Information theory. Internal Energy, enthalpy and entropy. Heat Transfer: Conduction, Convection and Radiation. Fluid Flow, Dimensional Analysis. Extended Surfaces. Applications to Cooling of Electronic Equipment in Electrical Systems. Prerequisites: MA 321 & BE 342.

ME 274 - Analytical Methods for Mechanical Engineers **45-3**
Characteristics of systems of linear algebraic equations; study of determinants, use of Cramers Rule, introduction to linear algebra. Use of computer code MATHCAD. Solution techniques by Gauss elimination, iteration, and matrix methods. Eigenvalue/eigenvector applications to boundary value problems in engineering. Orthogonality principle. Approximate solution methods and optimization by Rayleigh, Ritz, and Galerkin techniques. Introduction to probability and statistical theory. Design project. Prerequisite: MA 323.

ME 306 - Strength of Materials II **45-3**
Shear and Bending moment diagrams; elastic curves; deflection of beams of integration and area moment methods; use of singularity functions: indeterminate beams; the principle of superposition; energy methods; elastic strain energy; impact loads; deflection by work-energy method; column theory. Formulation of designs into mathematical models stressing computer-based analysis. Prerequisite: ME 205.

ME 309 - Mechanical Vibrations **45-3**
Theory of vibrations and methods for attenuating detrimental effects. Emphasis on design processes, involving: kinematics of periodic motion, single and multi-degree of freedom system analysis, use of Newton's third law of mechanics, Rayleigh principles for determining natural frequencies of discrete and distributed systems, use of matrix methods for solving free and forced vibration problems, vibration isolation and absorption theory, solving eigenvalue and eigenvector problems for multi-degree of freedom systems, use of Lagrange formulations to derive equations of motion for mechanical systems,and waveform analysis by application of Fourier series. Theory is reinforced by lab experiments and applied by means of a term design project, requiring the use of suitable computer programs such as MathCAD, Matlab, etc. To this end, two mechanical lab sessions and two computer instruction sessions are held on Saturday mornings. Prerequisites: ME 203, ME 274, ME 306.

ME 311 - Machine Design **45-3**
Elements of machine design applying the principles of kinematics, dynamics and strength of materials. Student creativity is developed through open ended problems and the formulation of design methodology and specifications. The use of alternative solutions are encouraged based on realistic design concepts and constraints. Prerequisites: ME 203 & ME 306.

ME 312 - Advanced Machine Design **45-3**
Advanced study of mechanical designs emphasizing the process of developing creative solutions through conceptual analysis and synthesis. Instruction is based on design projects emphasizing organization and management. Each project entails risk and financial analysis as well as computer simulations and computations. Engineering ethics is presented with case studies. Prerequisites: ME 309 and ME 311.

ME 318 - Introduction to the Finite Element Method of Structural Analysis (Elective) **45-3**
Applications of Finite Element Analysis in modern engineering. Matrix analysis of structures. Stiffness matrix formation. Energy methods. Computer techniques for finite elements. Review of commercial finite element programs Students will solve problems both manually and with the use of a computer program. Prerequisites: MA 227, CS 131 & ME 205.

ME 319 - Finite Element Analysis II (Elective) **45-3**
An introduction to advanced concepts in Finite Element Analysis. An introduction to the concepts of dynamics as applied to structures. The principals of mode shapes and their corresponding frequencies. Time history analysis will include modal superposition, direct integration and response spectrum methods. Random vibration analysis will be introduced. The Finite Element Analysis will be extended to problems in heat transfer including both steady state and transient analysis, conduction, convection and radiation modes will be covered. Prerequisite: ME 318, ME 349.

ME 325 - Practical Powder Metallurgy (Elective) **45-3**
Introduction to net shape forming technology using particulate materials (P/M) The fundamental principles of the process, the physical and mechanical behavior of particulate materials, and the practical applications in design are presented. The emphasis is placed on the powder metallurgy, composite materials and advanced particulate materials. A hands-on project is incorporated in the course to allow students to experience the P/M process and understand the characteristics of the P/M materials. Prerequisite: MF 206.

ME 327 - Engineering Fracture Mechanics (Elective) **45-3**
Design, analysis and test comparing conventional design with fracture mechanics approaches. Applications of fracture mechanics designs, selection of materials and failure analysis. Prerequisites: MF 206, ME 306.

ME 330 - Strength of Composite Materials (Elective) 45-3
Classical lamination theory. Introduction to the theory of elasticity that expresses the relationship between the laminate strain tensor and the stress field throughout the laminate. Single-layered isotropic, specially orthotropic, and anisotropic layers. Symmetric laminates; multiple generally orthotropic layers. Properties of the A, B, and D stiffness submatrices as partitioned from the laminate general stiffness matrix. Failure theories; causes of delaminations. Stress analysis of multiple symmetric balanced laminates. Computer programs are applied to stress analysis. Design project and laboratory projects are required. Prerequisites: MA 323, ME 205.

ME 342 - Thermodynamics II 45-3
A continuation of ME 241. Mixtures of ideal gases and vapors, psychrometry, and combustion analysis of common power generating, refrigeration, and air conditioning cycles. Figures of merit, including thermal efficiency. Continuity and momentum equations for steady, one-dimensional frictionless flow. Basic energy relations for turbomachinery. Fundamentals of compressor and turbine design. Application and synthesis of design using thermodynamic principles. Prerequisite: ME 241.

ME 346 - Energy Conversion (Elective) 45-3
Selected topics in energy conversion, including solar energy; propulsion; internal combustion engines; battery power; heat pumps; classic and novel power and refrigeration cycles; system analysis; system economics; environmental considerations. Prerequisite: ME 241.

ME 347 - Fluid Mechanics 45-3
Incompressible fluids at rest and in motion Introduction to compressible fluids: fluid statics: Bernoulli's theorem and the principle of similarity Flow through orifices, nozzles, and pipes Flow through open channels; energy relationships as applied to pipe lines, pumps and turbines. Acceleration of fluid masses; fluid dynamics the momentum theorem; turbomachinery. Prerequisites: ME 201 & ME 241.

ME 349 - Heat Transfer 45-3
One and two-dimensional heat conduction, including solutions for finned surfaces and solutions for transient problems. Convection heat transfer in laminar and turbulent flows. Fundamental radiation concepts. Laws of thermal radiation Radiation exchange geometrical factors and Oppenheim network methods Heat exchangers and electrical analogies. Emphasis is placed on design solutions using computer analysis and synthesis. Prerequisites: CS 132, ME 241 & ME 347.

ME 352 - Mechanical Engineering Laboratory II - Energy Systems 30-1
Classroom and experimental work assigned on a project basis. Experimental procedures based on statistical analytical methods applicable to the computer simulation and evaluation of mechanical designs. Experimental work includes heat transfer, fluid dynamics, rotational vibrations and feedback control. Prerequisites: ME 208, ME 309, ME 342 & ME 347.

ME 360 - Internal Combustion Engines (Elective) 45-3
The theory of internal combustion engines will be presented including the types of engines; gas cycles; fuel air and combustion thermodynamics; fuel air cycles; engine performance. Prerequisite: ME 342.

ME 371 - Mechanical Feedback Control Systems (Elective) 45-3
The dynamics of machinery extended to mechanical automatic control systems. Basic elements of servomechanisms with comparison of electrical, hydraulic, and mechanical systems. Analysis of the physical elements for control and feedback using transfer functions. Transient response and stability analysis. Practical applications to mechanical designs are presented. Prerequisites: ME 309 or EE 301.

ME 377 - Robotics and Manufacturing Systems (Elective) 45-3
Combined classroom and laboratory introduction to Automation, Robotics, the Automatic Factory and the Third Industrial Revolution. Historical development of Automation. Theory and Application of Robotics Introduction to Manufacturing Systems. Prerequisites: MA 227, BE 341, ME 202, ME 203 or electrical equivalent.

ME 378 - Robotics and Manufacturing Systems II (Elective) 45-3
Combined classroom and laboratory continuation of ME 377. Engineering studies of the components of the future automatic factory. Engineering studies of the future automatic factory system. Prerequisite: ME 377.

Manufacturing

MF 106 - Materials and Processes I 45-3
Introduction to the materials used throughout industry, including a study of the characteristics, properties, applications, extractions, and alloys. Primary metal working processes (foundry, heat treatment, hot and cold working, etc.) are introduced together with the economics of their applications. Study will include ferrous and non-ferrous metals and non-metallic materials (fiber-reinforced plastics (FRP), elastomers, and ceramics. Time permitting, at least one field trip is planned. *(Does not meet requirements for BS degree in manufacturing engineering.)*

MF 107 - Materials and Processes II 45-3
A continuation of an introductory course to "engineered" materials, their properties, and methods of joining, cutting, machining, and forming into products. Both common and advanced techniques used in manufacturing processes will be examined as unusual or "exotic" materials enter the mainstream of materials to be considered competing with traditional (metallic) materials. Emphasis will be on the latest methods of cutting and joining. Time permitting, at least one field trip (and/or) speaker is planned. *(Does not meet requirements for BS degree in manufacturing engineering.)*

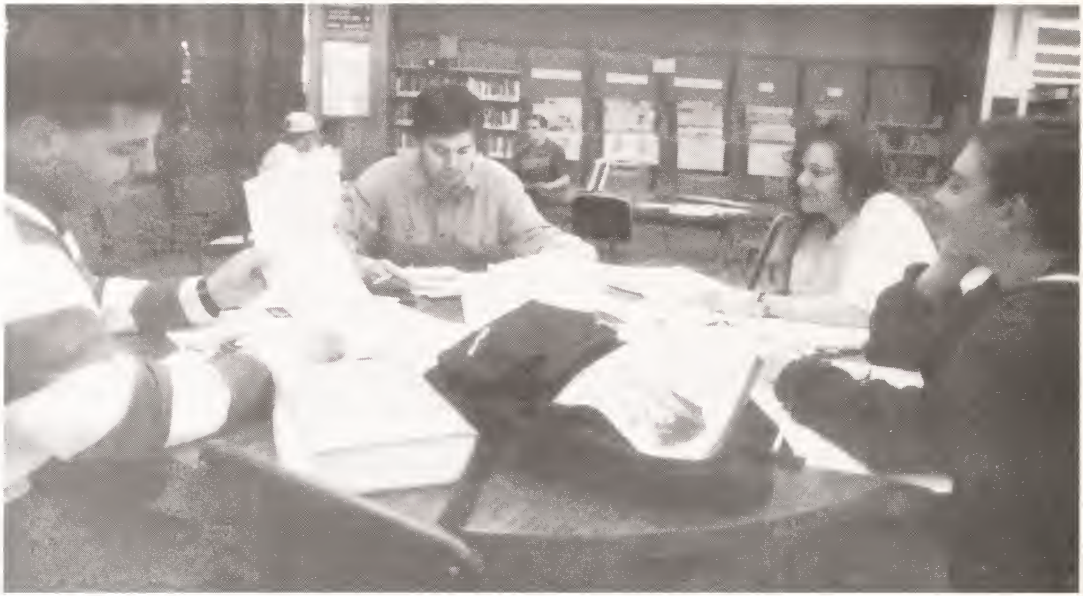
MF 206 - Engineering Materials 45-3
Study of materials science and engineering. Includes engineering properties of metals, polymers, ceramics, semiconductors, and magnetic materials. Relationships of materials to service and design applications are covered. Laboratory sessions are included. Prerequisite: BE 202.

MF 207 - Advanced Engineering Materials (M.E. students only)
Expands beyond Engineering Materials 206 (previously 204) to detail and include topics such as heat treatments, transformation diagrams, phase diagrams, alloy and microstructures. Emphasis is directed toward the aspects of metallurgy, engineering design and industrial processing. Laboratory sessions are included. Prerequisite: MF 206.

MF 310 - Polymer Chemistry (Elective) 45-3
This descriptive course is intended to acquaint the student with the classes, properties and utility of polymers. Topics to be presented include: history of polymer chemistry, addition and condensation polymers, copolymerization, characterization of polymers, fibers and elastomers, and water soluble polymers as time permits. Emphasis is on compositions and properties required for specific application. Prerequisites: BE 201 & BE 202.

MF 351 - Manufacturing Systems I 45-3
and
MF 352 - Manufacturing Systems II 45-3
These two courses will introduce the student to the basic methods of analysis used in automation and modem production systems, including principles and procedures related to design implementation, control and operation of manufacturing systems. Topics include F.M.S., Robotics, transfer lines, NC, CNC, CAD, CAM, cost, quality, materials, and material handling. Prerequisites: MA 321, MA 228, BE 341, or permission of instructor.

MF 353 - Manufacturing Processes and Materials 45-3
This course will provide basic knowledge of conventional and non-conventional manufacturing processes, as well as the design, engineering, and economic properties of conventional and non-conventional material. Considered are the influence of processing on material structure and properties and the role of processing in design of product. Included are processes such as casting, forging, sheet metal fabrication, plastic forming, injection of plastic and metals, powder metal joining, machining. Prerequisite: MF 352 or permission of instructor.



MF 354 - Product and Process Design for Manufacturing **45-3**
This course will consider many of the modern methods and tools for designing products and processes for manufacturability. Topics include: design for production; influence of materials on design; material handling; automatic inspection and instrumentation; tools, methods and techniques for product design and analysis. Prerequisite: MF 353 or permission of instructor.

MF 355 - Product Planning, Control and Forecasting **45-3**
This course will consider modern operations of both manufacturing and service sectors of the world economy. Topics to be included are: concepts of planning and control of production systems; design of control systems and operation planning; demand forecasting; inventory control, operations planning; scheduling; dynamic control; production planning of product mixes; economical lot sizes and vendor supplies. Where possible, computer models will be used. Prerequisite: MF 354 or permission of instructor.

MF 385 - Environmental Law (Elective) **45-3**
An overview of the current body of law known as "Environmental Law" by analysis of caselaw, statutes and administrative regulations. Discussion of administrative agencies and the review of their decisions. Acts to be discussed include the Clean Air Act, Clean Water Act, Comprehensive Environmental Response, Compensation and Liability Act. Resource Conservation and Recovery Act and the National Environmental Policy Act. Discussion of technological and economic feasibility defenses and available remedies. Overview of land use considerations that concern the protection of natural resources.

Engineering Seminar

MF 390 - Engineering Design Seminar **90-6**
A "capstone" course in which students work in teams choosing advanced projects which emphasize the engineering design approach. Literature search, synthesis, and in depth analysis and experimentation are required. Frequent presentations to faculty and peers are required of each member of the team. To enable successful presentation skills, the student will be required to take instruction in effective communication during the two term course. An oral presentation, written report, and working models culminate the seminar. This is a two term continuous course beginning in the fall term. Prerequisite: student required to have completed all courses through fifth year. Preferably one year prior to expected graduation.

Science, Mathematics, and Liberal Arts Course Descriptions

Courses in Mathematics, Physics, Chemistry and Liberal Arts, required or suggested for the Engineering Degree are described in this section. For more information refer to the catalogue of the College of Arts and Sciences.

AH 10 - Art History I 45-3
A survey of art with attention given to the interaction between art and its cultural environment, socioeconomic and technological. Emphasis will be given to the three branches of art - architecture, sculpture and painting. The time period to be covered will be from "the beginning," approximately 22,000 BC to the end of the Gothic, approximately 1400 AD.

BE 201 - Chemistry I 45-3
The study of chemistry introduces the fundamental concepts of matter including physical measurements, periodic classification of elements and compounds; energy and weight relationships; gas laws; liquids and solids, and oxygen and hydrogen. Laboratory sessions are held concurrent with lectures. Prerequisite: RM 104.

BE 202 - Chemistry II 45-3
A study is made of water and solutions including concentration of solutions; chemical kinetics; equilibrium; ionic, equilibrium; electrochemistry and oxidation-reduction type reactions. Study continues with nuclear and organic chemistry Laboratory sessions are held concurrent with lectures. Prerequisite: BE 201.

BE 341 - Physics - Mechanics 45-3
Resolution and combination of forces. Newton's laws of motion, accelerated linear and angular motion, rotation, energy, work, power and friction; momentum: Hook's Law; simple harmonic motion. Laboratory is included. Prerequisite: MA 26.

BE 342 - Physics - Heat, Light, Sound 45-3
Temperature and heat: measurement thermal balances, heat transfer, thermal properties (solids, liquids, and gases): waves: sound production, transmission interference and resonance: light reflection, refraction, lens and mirrors Laboratory included. Prerequisite: BE 341.

BE 343 - Physics - Electricity and Magnetism 45-3
Basic elements of electricity and magnetism; units of measurements; Ohm's Law; Kirchoff's Law: induced EMF; inductance, capacitance; AC series circuits Laboratory included. Prerequisites: MA 227 & BE 342.

BE 346 - Physics - Modern Physics 45-3
Electromagnetic waves; light interference and diffraction; Plank's Constant, photoelectric effect, Compton effect; particle/wave duality; uncertainty principle; Bohr Atom, quantum mechanics: semi conductors, nuclear structure, radioactivity; subatomic particles. Prerequisite: BE 343.

BE 374 - Engineering Economy 45-3
The fundamental concepts of engineering economic analysis are presented for engineers. The tools required to resolve engineering problems by the application of the criteria for economic efficiency are developed. The exact methods of present worth analysis, annual cash flow analysis, and rate of return analysis as applied to engineering problems are taught. Economic analysis is based on the concept of equivalence and the derivation of compound interest formulas. The realistic and complex effects of depreciation, income tax, and inflation on economic analysis are demonstrated. Six computer programs for use on IBM-PC, -XT or compatibles are used to solve a variety of engineering economic analysis problems. Prerequisites: MA 26 & EC 11 or EC 12.

BU 11 - Business Law I (Elective) **45-3**
A course designed for the engineer who has had no practice in solving legal problems and who needs a background in the legal complexities confronting the engineer in our society. Such legal areas as contracts, torts, agency, patent and trademark rights, environmental law, along with a discussion of the ethical and professional responsibilities of engineers and architects will be discussed in straightforward language uncomplicated by legal jargon. The necessary legal reasoning, legal procedures, ethics, etc. are examined from the viewpoint of the engineer as employee, agent, manager or executive.

EC 11 - Introduction to Microeconomics
Analysis of the behavior of individual consumers and producers as they deal with the economic problem of allocating scarce resources. Includes a discussion of how markets function to establish prices through supply and demand, how resource costs influence firm supply and how variations in the level of competition affect the efficiency of resource use. Topic areas include antitrust policy, the distribution of income, the role of government, environmental problems. Computer applications. *3 semester hours*

EC 12 - Economics **45-3**
A study of macro-economics with emphasis on fundamental concepts and principles used in the analysis of market processes, business organization and national income; detailed treatment of fluctuations in national income and connected problems; effects of taxes and spending in the public sector; theory of economic growth, problems in underdeveloped countries. Prerequisite: EN 11.

EN 11 - English I **45-3**
Introduction to literature, with emphasis on the essay and poetry. Development of language skills through vocabulary growth, grammar study, and oral communication. Particular attention to theme writing and practice in the techniques of clean exposition.

EN 12 - English II **45-3**
More intensive study of literature, with emphasis on short fiction, drama and original poetry. Vocabulary growth and instruction in techniques of oral communication. Seven to eight essays will be required in addition to a term paper of a critical essay using MLA library form. Prerequisite: EN 11.

HI 30 - The Foundations of Modernization in the West **45-3**
Under the impetus of the Renaissance and Reformation, the Western world began the process of modernization by re-examining its concept of society, its political, religious and economic institutions, and the individual's relationship to them. The rise of nation-states and imperial rivalries opened European contact with the rest of the globe. The Scientific Revolution and the Enlightenment accelerated the intellectual search for truth which found political expression in revolutions in Great Britain, the United States and France.

HI 232 - American History I **45-3**
This course is a survey of the major political, cultural and diplomatic trends from the discovery of the New World to the Reconstruction Period (1876). Major topics would include the American Revolution, the Federalist Period, Jacksonian Democracy, and the Civil War.

HI 238 - American History II **45-3**
This course is a continuation of American History 417 with the same basic goals. Major topics would include: Industrial America, the Road to Imperialism, World War 1, the Twenties, Depression and New Deal, World War II, the Cold War.

HI 239 - Twentieth Century America **45-3**
This course in American History is designed for the student who wishes to broaden his knowledge of recent events. It will begin with a review of the first World War and continue to the present day. Emphasis will be placed on concepts drawn from politics, sociology, music and foreign affairs.

MA 25 - Calculus I **45-3**
Introduction to calculus and analytic geometry. Topics include derivatives, the chain rule, implicit functions, continuity, maxima and minima, and derivatives of trigonometric functions. Indefinite and definite integrals. Prerequisite: RM 104.

MA 26 - Calculus II **45-3**
Continuation of Calculus 25. Topic include the study of various transcendental and nonlinear functions and their derivatives. Introduction to integral calculus, integration of various functions and applications. Prerequisite: MA 25.

Ellis Cooper (center), while working at Nash Engineering Co. in Trumbull, Conn., created a series of 10 posters to salute African-American engineers and inventors.

MA 227 - Calculus III **45-3**
Culmination of the Calculus sequence. Topics include hyperbolic functions, solid analytic geometry, partial derivatives, multiple integration, infinite series and matrices. Prerequisite: MA 26.

MA 321 - Differential Equations **45-3**
Introduction to the solution of ordinary differential equations which describe physical phenomena. Definition and solution of differential equations of first order and applications; higher order differential equations, solution and applications; operator methods and solution to system of linear differential equations; solutions of series expansion. Prerequisite: MA 227.

MG 21 - Organizational Behavior and Management
This course provides an overview of both micro- and macro-organizational behavior concepts which will be presented as they apply to management practices in organizations. Topics such as interpersonal relations, motiviation, leadership, organizational design and the external environment will be examined to provide students with a general understanding of these phenomena. Special emphasis will be placed on communication processes in organizations and how interpersonal communication can best be handled in managerial jobs. Prerequisite: Junior standing.
3 semester hours

PY 101 - Psychology I **45-3**
A study of the physiological basis of perception and behavior, followed by an account of experimental findings on maturation, motivation, learning, individual differences, and group processes affecting the formation of role-concepts and attitudes; the role of emotions, kinds of reactions to frustration, neurotic and psychotic; major approaches to psychotherapy. Prerequisite: EN 11.

PY 132 - Industrial/Organizational Psychology **45-3**
Development of management thought, nature and functions of management, role of the manager, setting goals and policies, planning and decision making, Organizational behavior, individual and group behavior, motivation and morale leadership. Formal organization theory and structure, staff concepts, delegation and focus of decision making. Communications and control systems. Prerequisite: EC 11 or EC 12.

RM 104 - College Algebra and Trigonometry
Basic concepts of college-level algebra and trigonometry to prepare students for the Calculus sequence. Topics included in this course: functions and graphs, systems of equations and inequalities, matrices and determinants, partial fractions, binomial theorem, series and sequences; also, trigonometric functions and their graphs, trigonometric identities, laws of sines and cosines, vectors and complex numbers.

Engineering Faculty and Staff Directory

Clement I. Anekwe *Professor of Mechanical Engineering*
(MS ME, University of Bridgeport; Ph.D., West Virginia University) Senior Engineer, Allied Signal

Drew Auth *Associate Professor of Mathematics*
(BS ME, Bridgeport Engineering Institute) Senior Reliability Engineer, Textron-Lycoming (retired)

Vincent Bello *Assistant Professor of Electrical Engineering*
(B.EE, Manhattan; MS EE, Ph.D., New York University) Consultant

Joseph A. Benedetti *Instructor of Engineering Graphics*
(BS ME, Bridgeport Engineering Institute) Senior Designer, Airframe/Loft, Sikorsky Aircraft

Avi Ben-Porat *Associate Professor of Mechanical Engineering*
(B.Sc., Israel Institute of Technology; M.SC., Polytechnic Institute of Brooklyn; P.E.D., Columbia University) Advanced Engine Systems Manager, Allied Signal

Paul P. Botosani *Professor of Electrical Engineering & Robotics, Principal Laboratory Engineer*
(BS EE, ME.S.E.E., Ph.D., Institute of Bucharest (Romania), Visiting Faculty Fellow, 1989-90, 1991-92, Yale University; Member of Bridgeport Board of Education, 1992-95

Robert P. Bourdoulous *Assistant Professor of Materials*
(B.E., City College of New York; M.S.I.E., University of New Haven) Senior Engineer, Perkin-Elmer Corporation

Robert W. Brewczynski *Senior Instructor of Engineering Graphics*
(BS ME, University of Hartford) Senior Design Engineer, Sikorsky Aircraft (Retired)

Yew-Tsung Chen *Associate Professor of Mechanical Engineering*
(B.S., Cheng Kung University (Taiwan); M.S., Ph.D., University of Minnesota) Manager/Senior Technical Staff, Pitney Bowes

Donald G. Comiskey *Associate Professor of Engineering Materials*
(A.S., Norwalk State Technical College; BSME, Bridgeport Engineering Institute) Administrator: Quality Assurance & Production Procedures, Handy & Harmon

John D. Crowley *Associate Professor of Client Server Technology*
(B.S., Boston College; Ph.D., University of Pennsylvania) Consultant JDC Assoc.

Henry A. Cubberly *Instructor of Engineering Graphics*
(B.ME., Cooper Union; MME, Brooklyn Polytechnic Institute) Consulting Engineer Technology Associates

John R. Davis *Instructor of Manufacturing Engineering*
(BSME, Bridgeport Engineering Institute) Manager Technical Services, Pitney Bowes, Inc. MBA

James R. DeCarli *Instructor of Client Server Technology*
(B.S. University of Connecticut; MS University of New Haven) Application Specialist, Corporate Information Tech.

Joseph DeFranco *PE Assistant Professor of Mechanical Engineering*
(BSME, M.S.M.E., Brooklyn Polytechnic Institute; Ph.D., University of Connecticut) Systems Manager Sikorsky

Jeffrey N. Denenberg *Associate Professor of Electrical Engineering*
(BSEE, Northwestern University; MS, Ph.D., IIT) Consultant

S. Paul Dev *Assistant Professor of Mechanical Engineering*
(B. Tech. (Mech.) Engr., M. Tech. (Thermal) Engr., Indian Inst. of Technology (Delhi); M.S.M.E., Vanderbilt University; MBA, University of Connecticut

Bernard L. Dickens *Senior Instructor of Electrical Engineering*
(BSEE, Rensselaer Polytechnic Institute; MS EE., University of Pennsylvania) Consultant

Alan Dubrow *Professor and Chairman of Mechanical Engineering*
(B.ME., City College of New York; M.S.M.E., Rensselaer Polytechnic Institute PE, New York), Project Leader, Precision Combustion, Inc.

Richard T. Earls *Instructor of Client Server Technology*
(BA, Holy Cross; M.Ed., University of Massachusetts) Senior Systems Analyst, Miles Inc.

Patricia Earnest *Senior Instructor of Engineering Seminar*
(BA, University of Maine; MS, Rensselaer Polytechnic Institute) Supvr. Tech. Pub., Branson

Shah Etemad *Associate Professor of Mechanical Engineering*
(B.S., University of Sussex; MS, University of London; Ph.D., University of Washington) Senior Engineer, Allied Signal

Carl E. Fagerholm *Instructor of Electrical Engineering*
(BSEE, University of Connecticut; MS EE., HGC) Senior Design and Develop. Engineer, Norden Systems

Leon Feigin *Assistant Professor of Mechanical Engineering*
(B.ME., Cooper Union; MS EE., University of Bridgeport; MS EM., New York University) Consultant

Robert A. Fisch *Assistant Professor of Electrical Engineering*
(BA, University of Chicago; MS EE., New York University) Senior Systems Engineer, Norden Systems

Pradeep Govil, *Assistant Professor of Electrical Engineering*
(BS EE, Illinois Institute of Technology; MS EE., Carnegie Mellon) Principal Engineer, SVGL

William F. Guelakis *Instructor of Client Server Technology*
(B.S., M.S., University of New Haven) Supervisor/Lead Programmer Analyst, GE Corporation

Sarma Gullapalli *Professor of Electrical Engineering*
(B.Sc., University of Madras (India); B. Tech., Indian Institute of Technology (Madras); MS EE., Ph.D., Polytechnic Institute of Brooklyn) Principal Engineer, Hughes Danbury Optical Systems

Evangelos Hadjimichael *Acting Dean, BEI*
(B.S., City University of New York, Ph.D., University of California, Berkeley)

Joseph Hajla *Senior Staff Associate*
(AS ME, BS ME, Bridgeport Engineering Institute) Consulting Engineer

Karen F. Hills *Professor of Information Systems Engineering*
(B.S., New Jersey Institute of Technology; MS, Ph.D., New York University)

Harvey Hoffman, *Chairman, Electrical Engineering Department, and Professor*
(B EE, City College of New York: M EE., EE, New York University MSM, Hartford Graduate Center) Project Manager, Canberra Industries

Jay Hoffman *Assistant Professor of Mechanical Engineering*
(B.A.E., MME, New York University) Research Staff, University of Connecticut

David H. Hunter *Associate Professor of Mechanical Engineering*
(BS ME, MME, Rensselaer Polytechnic Institute) Rotor Systems Engineer, Sikorsky Aircraft

Abdul Hye *Assistant Professor of Electrical Engineering*
(B.S., Punjab University; BS EE, Engineering University; MS EE., University of Bridgeport; Ph.D., PWU) Consultant

William Janeff *Professor of Electrical Engineering*
(Dipl. EE, University of Vienna; Ph.D., University of Dresden) Chair EE Dept., University of Bridgeport

James Kalley *Senior Instructor of Industrial Management*
(B.B.A., Western Connecticut State University; MBA, University of New Haven)

Edward G. Keplinger *Senior Instructor of Electrical Engineering*
(BS EE, Bridgeport Engineering Institute) Senior Engineer, Pitney Bowes

Peter Kochersperger *Instructor of Mechanical Engineering*
(BS ME, Clarkson; M.S.M.E, Rensselaer Polytechnic Institute) Senior Engineer, SVGL

Herbert Kolodny *Senior Instructor of Client Server Technology*
(B.S., Northeastern) Senior Network Technician GE Electrical Distribution and Control

Neil E. Krebs *PE Professor of Mechanical Engineering*
(BS CE., MS CE., Ph.D., Rensselaer Polytechnic Institute) Bridgeport Engineering Institute; Consulting Engineer, Mechanics of Solids Applied Mathematics and Advanced Composite Materials

Robert L. Kugel *Professor of Chemistry*
(B.S., Fordham University; Ph.D., Pennsylvania State University) Senior Research Chemist, King Industries, Inc.

Walter J. Kulpa *Associate Professor of Mechanical Engineering*
(BS E., Stevens Institute of Technology; M.S.M.E., University of Bridgeport) Senior Engineer, Pitney Bowes

Everett P. Loppacker *Instructor of Mechanical Engineering*
(BS CE., MS CE., North Carolina University)

Raymond Lupkas *Instructor of Mechanical Engineering*
(BS ME, BS CE., AS EE, ASMETALS, University of New Haven) Consultant, Lupkas Engineering

Albert Madwed *Director Manufacturing Engineering and Engineering Management Departments, Professor*
(B.S., MS, Sc.D., Massachusetts Institute of Technology) President, A. Madwed Co.

Thomas Mannino *Senior Instructor of Information Systems Engineering*
(B.S., University of New Haven; MS, Drexel University) Project Manager, Engineering

Nicholas A. Mastrocinque *Senior Instructor of Engineering Graphics*
(BS ME, MS CAD, State University of New York); CAT Manager, Sikorsky Aircraft

William Medalis *Senior Instructor of Engineering Graphics*
(A.S., Pennsylvania State University; BS ME, Bridgeport Engineering Institute) Quality Control Engineer, E.I. Dupont

Peter M. Moanfeldt *Professor of Mechanical Engineering*
(B.S., in Met E., Lehigh University; MS, University of South Carolina; Ph.D., Florida State University) Professor, Department of Mechanical & Manufacturing Technology, Gateway Community Technical College

Dean Muccio *Senior Instructor of Engineering Graphics*
(BS ME, Norwich University; M.S.M.E, Yale University) Project Engineer, Sikorsky Aircraft

Edward L. O'Neil *Instructor of Mathematics*
(BS EE, University of Connecticut; M.E., Consultant, Regulatory Engineering Services)

Marvin J. Parnes *Associate Professor of Mechanical Engineering*
(BS ME, M.S.M.E., City College of New York) Consultant, Heatsource

Denton Pearsall *Vice Chairman Electrical Engineering Professor*
(B.S., MS, New York University) Director of Systems Design, Hughes Danbury Optical Systems

Clement Pizzo *Associate Professor of Electrical Engineering*
(BS EE, West Virginia Institute of Technology; MS EE., E.E.D., Polytechnic Institute of New York) Consultant

John Porter *Associate Professor and Director Client Server Technology*
(BS ME, WPI; MBA, New York University) Consultant

William Quartuccio *Senior Instructor, Information Systems Engineering*
(B.S. Manhattan College, MS, Polytech University) Engineering, IBM

Mark Ramsey, *Chairman, Computer and Information Systems Engineering Department and Assistant Professor*
(B.S. Computer Science and Mathematics - Eastern Connecticut State University) Project Manager, Integrated Business Solutions, Pitney Bowes World Headquarters

R. Wayne Raulerson *Senior Instructor of Computer Science*
(B.Ch.E., Brooklyn Polytechnic Institute) Senior Technical Systems Analyst, Nash Engineering

Lawrence J. Reed *Senior Instructor of Electrical Engineering*
(BS EE, Cornell) Senior Design Engineer, Norden Systems

Felice P. Rizzo *Director, Engineering Graphics Program and Assistant Professor*
(BS M.E., Bridgeport Engineering Institute) Design Quality Engineer, Sikorsky Aircraft

Jacob C. Rubin *Associate Professor of Mechanical Engineering*
(B ME., City College of New York; MME, New York University; MS Applied Statistics, MS Imaging Science, Rochester Institute of Technology) Consulting Engineer

James R. Savage *Instructor of Industrial Management*
(A.A.S., Waterbury State Technical College; BS Mfg. E., University of Bridgeport; MBA, University of New Haven) Senior Manufacturing Engineer, Remington Products, Inc.

Albert J. Seedman *Instructor of Electrical Engineering*
(B.S., Fairleigh Dickinson University) Consulting Engineer

Richard Siddall *Senior Instructor of Information Systems Engineering*
(BS EE, University of Lancaster-England; MS EE., University of Kent-England) Senior Engineer, Elirion, Inc.

Andre Van Parys *Assistant Professor of Industrial Management*
(B.S., St. Joseph, MBA, Drexel) Marketing Specialist, Datamat Systems

Richard G. Weber, *PE, Associate Dean and Professor of Mechanical Engineering*
(BS ME, MS, University of Connecticut; Ph.D., School of Mines, Nancy, France) Admin., Fairfield University; Yale Visiting Faculty Fellow, 1994-95

Earl E. Whiskeyman, Jr. *Senior Instructor of Information Systems Engineering*
(BA, Millersville State University; MBA, Pennsylvania State University) Data Base Consultant, MIS Data Administration, Pitney Bowes

Clifford A. Wojan *Professor of Mechanical Engineering*
(B ME., MME, Polytechnic Institute of Brooklyn; M.I.E., New York University) Consulting Engineer

Robert M. Wojna *Senior Instructor of Engineering Materials*
(A.A.S., Norwalk State Technical College; BS ME, BS EE, Bridgeport Engineering Institute) Consulting Engineer

Support Faculty

Rudy Berndlmaier *Instructor of Chemistry*
(B.S., Iona College) Coatings Chemist, King Industries, Inc.

Brian J. Cassidy *Instructor of Mathematics*
(BA, Southern Connecticut State College) Actuary, Knights of Columbus Insurance Co.

Tsu-Chien Cheu *Instructor of Mathematics*
(B.S., Nat'l Taiwan University; MS, University of Wyoming; Ph. D., University of Texas at Austin) Senior Engineer, Textron Lycoming

Gary W. Corris *Instructor of Mathematics*
(AS EE, Norwalk State Technical College; BS EE, Bridgeport Engineering Institute; MS EE., University of Bridgeport) Associate Research Scientist, Schlumberger Doll Research Center

Robert J. Counihan *Instructor of Mathematics*
(BS EE, Southeastern Massachusetts University; MS EE., Syracuse University) Resident Engineer, N.Y.S.E.G.

John E. David *Instructor of Mathematics*
(BA, Fordham University; MA, Ph.D., University of Rochester) Director of Network Optimization ADP-BISG

Daniel F. Dlugos *Instructor of Mathematics*
(BS E., University of Connecticut) Business Systems Fellow-Shipping & Weighing Systems Division, Pitney Bowes

Ralph Langanke *Instructor of Mathematics*
(B.S., Georgia Institute of Technology; MBA, University of Bridgeport) Retired

Richard J. Mathews, *Senior Instructor of Mathematics*
(BS ME, MS IE., University of New Haven) Instructor, Sacred Heart University

Jacob Puli, *Instructor of Mathematics*
(BA, SSM College (India); MA, St. John's College, Agra University (India) Adjunct Professor, University of New Haven

Joseph M. Sebas *Instructor of Physics*
(B.S., College of the Holy Cross; MS, University of Bridgeport) Professor Naugatuck Valley Technical & Community College (formerly Waterbury State Technical College)

Renan Sezginer *Instructor of Mathematics*
(B.S., Massachusetts Institute of Technology; MA, Brandeis University; MS, New York University)

Howard W. Shelnitz *Instructor of Law*
(BS EE, Bridgeport Engineering Institute; J.D., University of Bridgeport) Attorney, Zailckas & Zailckas

Jean Silva *Instructor of Mathematics*
(B.S., Seton Hall; MA, C.A.S., Fairfield University) Instructor, Sacred Heart University

Gareth Thomas *Instructor of Mathematics*
(B.S., MS, University of Wales (England); MBA, University of Connecticut) Manager of Software Quality Assurance, Sikorsky Aircraft

John P. Walsh *Instructor of Mathematics*
(BM.E., MME. Rensselaer Polytechnic Institute) Senior Manufacturing Engineer, Sikorsky Aircraft

Ted Watkin *Instructor of Mathematics*
(BS ME, Cooper Union) President-Applied Technology; Chief Technical Officer-Sound Environment Associates

Thomas G. Westbrook *Instructor of Mathematics*
(BA, State University College-N.Y.: MS, Boston University) Loads Engineer, Sikorsky Aircraft

Directory

University Administration

Aloysius P. Kelley, S.J., Ph.D.
President

Charles H. Allen, S.J., M.A.
Executive Assistant to the President

George E. Diffley, M.A.
Vice-President for University Advancement

Fredric C. Wheeler, M.P.A.
Associate Vice-President for Development

William J. Lucas, M.B.A.
Vice-President for Finance

Michael S. Maccarone, M.S.
Controller

L. William Miles, M.S.
Vice-President for Administration

Stephen P. Jakab, M.A.
Associate Vice-President for Administration

William P. Schimpf, M.Ed.
Vice-President for Student Services

Robert E. Wall, Ph.D.
Academic Vice-President

Mary Frances A. Malone, Ph.D.
Associate Academic Vice-President

Orin L. Grossman, Ph.D.
Dean of the College of Arts and Sciences

Russell P. Boisjoly, D.B.A.
Dean of the School of Business

Evangelos Hadjimichael, Ph.D.
Acting Dean of the BEI School of Engineering

António Simoes, Ph.D.
Dean of the Graduate School of Education and Allied Professions

John M. Sweeney, Ed.D.
Dean of the School of Continuing Education

Theresa M. Valiga, Ph.D.
Dean of the School of Nursing

Robert C. Russo, M.A.
University Registrar

Board of Trustees

Joseph F. Berardino
Robert L. Berchem
Kenneth J. Boller, S.J.
Antony E. Champ, Ph.D.
Gregory C. Chisholm, S.J.
William H. Connolly, Jr.
E. Gerald Corrigan
James M. Cotter
Eileen M. Cullen
Dennis D. Dammerman
Daniel A. Degnan, S.J.
Joseph A. DiMenna, Jr.
Charles F. Dolan
William P. Egan
Daniel R. Finn, Jr.
J. Donald Freeze, S.J.
Vincent A. Gierer, Jr.
George F. Keane
Herbert B. Keller, S.J.
Aloysius P. Kelley, S.J.
Charles F. Kelley, S.J.
Kathi P. Loughlin
Roger M. Lynch (Chair)
Arthur R. Madigan, S.J.
William A. McIntosh
John C. Meditz
Frederick J. O'Brien, S.J.
Leslie C. Quick, Jr.
Lawrence C. Rafferty
Rosellen W. Schnurr
Richard J. Schwartz
Maive F. Scully
Gerald A. Smith
John G. Swanhaus, Jr.
Francis T. Vincent, Jr.

Trustees Emeriti

James W. Birkenstock
Alphonsus J. Donahue
David W. P. Jewitt
James J. McGinley, S.J.
Francis J. McNamara, Jr.
L. William Miles

BEI School Administration

Evangelos Hadjimichael, Ph.D.
Acting Dean

Richard G. Weber, Ph.D., P.E.
Associate Dean

Harvey Hoffman, M.E.E., E.E., M.S.M.
Chairman, Electrical Engineering

Mark Ramsey, B.S.
Chairman, Information Systems Engineering and Computer Science

Alan Dubrow, M.S.M.E., P.E.
Chairman, Mechanical Engineering

Albert Madwed, Sc.D.
Director, Manufacturing Engineering

Felice P. Rizzo, B.S.M.E.
Director, Engineering Graphics and CAD

John Porter, B.S.M.E., M.B.A.
Director, Client-Server Technology

Paul P. Botosani, Ph.D.
Principal Laboratory Engineer

Robert Wojna, B.S.E.E., B.S.M.E.
Laboratory Engineer

Anthony Gugglielmo, B.S.M.E.
Senior Curriculum Counselor

Nicholas J. Ivanoff, M.S.M.E.
Curriculum Counselor

Joseph L. Laganza, B.S.M.E.
Curriculum Counselor

Kim E. Siladi, B.S.E.E.
Curriculum Counselor

Joseph Hajla, B.S.M.E.
Senior Staff Associate

Robert R. Brand, B.S. Chemistry
Staff Associate

Annette Castelot
Secretary

Lorraine Castelot
Secretary

George Woodfine
Computer Lab. Associate

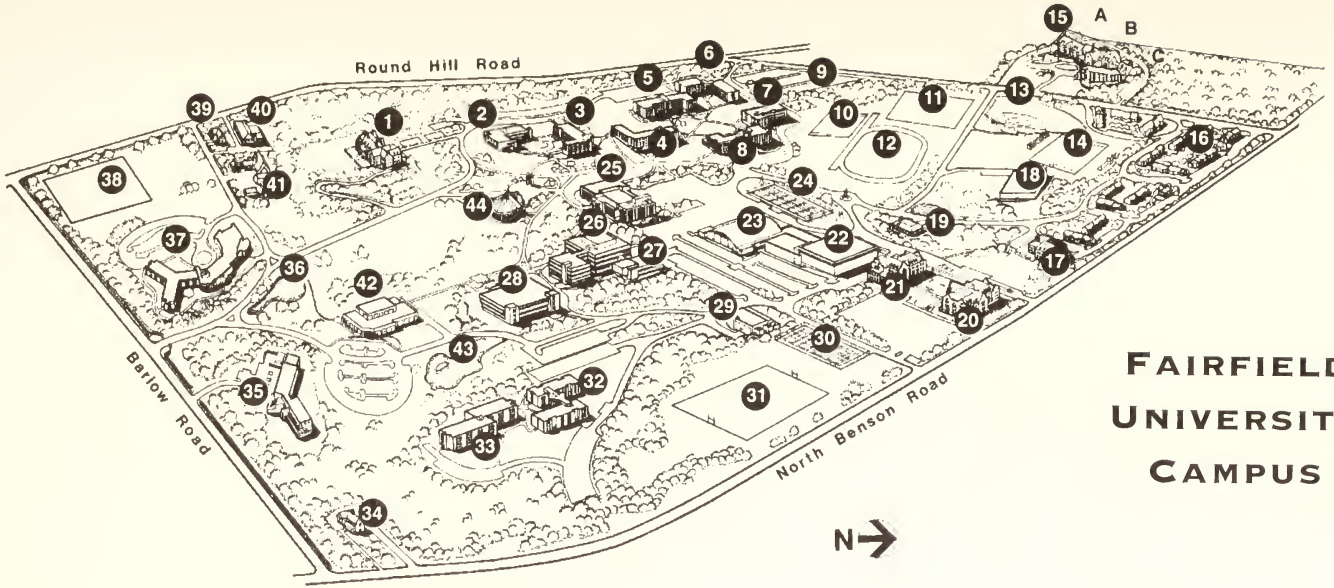
Edward Corella
Senior Engineering Lab. Technician

Jeffry Trombley
Lab. Technician

BEI School Advisory Board

Thomas Barnard, Ph.D.
G. Howland Blackiston
James A. Connelly
Michael McPartland
Gilbert C Mott
Joseph C. Olson
John G. Phelan
James J. Satterwhite
Christian Sauska
Fred Stahl, Ph.D.

Index



Fairfield University Campus

1. Bellarmine Hall
2. Donnarumma Hall
3. Canisius Hall
4. Gonzaga Hall
5. Regis Hall
6. Jogues Hall
7. Campion Hall
8. Loyola Hall
9. Basketball Courts
10. Playing Field
11. Intramural Field
12. Varsity Field
13. Baseball Field
14. Alumni Field
15. Dolan Campus
    A. John C. Dolan Hall
    B. David J. Dolan House
    C. Thomas F. Dolan Commons
16. Student Town House Complex
17. McAuliffe Hall
18. Locker Facility
19. The Levee
20. Xavier Hall
21. Berchmans Hall
22. Recreational Complex
23. Alumni Hall - Gymnasium
24. Tennis Courts
25. Barone Campus Center
26. Bannow Science Center
27. School of Nursing
28. Nyselius Library
29. Central Utility Facility
30. Tennis Courts
31. Grauert Field
32. Kostka Hall
33. Claver Hall
34. Jesuit Residence - St. Robert
35. Jesuit Residence - St. Ignatius
36. Bellarmine Pond
37. The Conference Center
38. Barlow Field
39. Southwell Hall
40. PepsiCo Theatre
41. Maintenance
42. Regina A. Quick Center for the Arts
43. Hopkins Pond
44. Egan Chapel of St. Ignatius Loyola and Pedro Arrupe, S.J. Campus Ministry Center

DIRECTIONS – To reach Fairfield University:

- From New York via Connecticut Turnpike (I-95). Take Exit 22. Turn left onto Round Hill Road.
- From New Haven via Connecticut Turnpike (I-95). Take Exit 22. Turn right onto North Benson Road (Rt. 135).
- From New York or New Haven via Merritt Parkway (Rt. 15). Take Exit 44, right onto Black Rock Turnpike; proceed 2 miles to Stillson Road (Rt. 135) and turn right. Bear left onto North Benson Road to the entrance.

FAIRFIELD
UNIVERSITY

BEI School of Engineering
North Benson Road
Fairfield, CT
06430-5195

Phone: (203) 254-4147 • Fax: (203) 254-4013 • e-mail: bei@fair1.fairfield.edu